



# **PERSONNEL QUALIFICATION STANDARD FOR**

**SURFACE WARFARE OFFICER (SWO)  
COMBAT INFORMATION CENTER WATCH OFFICER  
(CICWO), OFFICER OF THE DECK (OOD) UNDERWAY (U/W),  
OFFICER OF THE DECK (OOD) UNDERWAY (U/W)  
PLATFORM ENDORSEMENT**

**NAME (Rate/Rank)** \_\_\_\_\_

Although the words “he”, “him,” and “his” are used sparingly in this manual to enhance communication, they are not intended to be gender driven nor to affront or discriminate against anyone reading this material.

# TABLE OF CONTENTS

|  | Page |
|--|------|
| ACKNOWLEDGEMENTS-----  | 5    |
| INTRODUCTION-----  | 7    |
| SUMMARY OF CHANGES-----  | 11   |
| WATCHSTATION REQUALIFICATIONS-----   | 15   |
| ACRONYMS -----   | 17   |
| 100 INTRODUCTION TO FUNDAMENTALS-----                                      | 19   |
| 101 Safety Precautions-----  | 21   |
| 102 Composite Warfare Command (CWC) Concept -----                          | 24   |
| 103 Operational Reports -----  | 26   |
| 104 Combat Information Center (CIC) Mission-----                           | 29   |
| 105 Combat Information Center (CIC) Plotting Procedures and Displays-----  | 30   |
| 106 Combat Information Center (CIC) Watch Organization and Personnel ----- | 33   |
| 107 Combat Information Center (CIC) Publications and Logs -----            | 36   |
| 108 Radar-----   | 38   |
| 109 Naval Tactical Data System (NTDS)/Combat Direction System (CDS)-----   | 41   |
| 110 Combat Information Center (CIC) Special Evolutions -----               | 45   |
| 111 Naval Communications -----   | 47   |
| 112 Maneuvering Board-----   | 51   |
| 113 Radio Propagation -----  | 53   |
| 114 Signal Security-----   | 55   |
| 115 U.S. Naval Assets-----   | 57   |
| 116 Naval Gun and Ammunition -----   | 60   |
| 117 Gunfire Control-----   | 63   |
| 118 Naval Missile -----  | 65   |
| 119 Air Defense (AD)/Antiship Missile Defense (ASMD) -----                 | 67   |
| 120 Surface Warfare (SUW) -----  | 73   |
| 121 Propagation of Sound in Water -----                                    | 76   |
| 122 Sonar-----   | 79   |
| 123 Antisubmarine Warfare (ASW) Communications -----                       | 82   |
| 124 Antisubmarine Warfare (ASW) Organization-----                          | 84   |
| 125 Antisubmarine Warfare (ASW) Aircraft and Sonobuoy -----                | 86   |
| 126 Antisubmarine Warfare (ASW) Tactics -----                              | 88   |
| 127 Electronic Warfare (EW)-----   | 92   |
| 128 Electronic Support (ES)-----   | 94   |
| 129 Electronic Attack (EA)-----  | 96   |
| 130 Electronic Protection (EP)-----  | 99   |
| 131 Military Deception (MILDEC)-----                                       | 100  |
| 132 Mine Warfare (MIW) Organization -----                                  | 101  |
| 133 Mining -----   | 103  |
| 134 Mine Countermeasure -----  | 106  |
| 135 Amphibious Task Force/Task Group Organization -----                    | 111  |

## TABLE OF CONTENTS (CONT'D)

|  | Page    |
|--|---------|
| 136 Amphibious Warfare Operations -----                        | 113     |
| 137 Amphibious Landing Craft -----                             | 116     |
| 138 Naval Surface Fire Support (NSFS) -----                    | 117     |
| 139 Naval Threat -----   | 119     |
| 140 Bridge Equipment -----                                     | 120     |
| 141 Underway Bridge Watch -----                                | 122     |
| 142 Deck Seamanship -----                                      | 126     |
| 143 Standard Commands -----                                    | 129     |
| 144 Anchoring -----  | 132     |
| 145 Bouy Mooring -----   | 135     |
| 146 Connected Underway Replenishment (CONREP) -----            | 137     |
| 147 Aviation Operations on Surface Ships -----                 | 141     |
| 148 Towing -----   | 144     |
| 149 Shiphandling -----   | 146     |
| 150 Special/Emergency Evolutions -----                         | 150     |
| 151 Weather -----  | 154     |
| 152 Tactical Maneuvering -----                                 | 156     |
| 153 Nautical Charts and Publications -----                     | 159     |
| 154 Tides and Currents -----                                   | 161     |
| 155 Compass Error -----  | 162     |
| 156 Navigation -----   | 163     |
| 157 Navigation Rules -----                                     | 167     |
| 158 Visual Communications -----                                | 168     |
| 159 Survival and Survival Equipment -----                      | 171     |
| 160 Buoys -----  | 173     |
| 161 Combat Systems Operational Sequencing System (CSOSS) ----- | 174     |
| 162 Pollution Control -----                                    | 175     |
| 163 Marine Mammal Protection -----                             | 178     |
| 164 Minor Caliber Weapons -----                                | 179     |
| <br>200 INTRODUCTION TO SYSTEMS -----                          | <br>181 |
| 201 Radar Equipment -----                                      | 183     |
| 202 Naval Tactical Data System (NTDS) -----                    | 186     |
| 203 Naval Communications -----                                 | 188     |
| 204 Naval Gun -----  | 191     |
| 205 Gun and Missile Fire Control -----                         | 193     |
| 206 Naval Missile -----  | 195     |
| 207 Surface Ship Sonar -----                                   | 198     |
| 208 Surface Ship Antisubmarine Warfare (ASW) Weapons -----     | 201     |
| 209 Information Warfare (IW) -----                             | 204     |
| 210 Ship Control -----   | 207     |
| 211 Anchor Windlass -----                                      | 209     |
| 212 Anchor -----   | 211     |
| 213 Connected Underway Replenishment (CONREP) -----            | 213     |
| 214 Shiphandling -----   | 215     |
| 215 Mine Warfare (MIW) Weapons -----                           | 217     |

## TABLE OF CONTENTS (CONT'D)

|  | Page |
|--|------|
| 300 INTRODUCTION TO WATCHSTATIONS -----  | 221  |
| 301 Surface Warfare Officer (SWO) Combat Information Center Watch Officer (CICWO) -                        | 223  |
| 302 Surface Warfare Officer (SWO) Officer of the Deck (OOD) Underway (U/W) -----                           | 249  |
| 303 Surface Warfare Officer (SWO) Officer of the Deck (OOD) Underway (U/W) (Platform<br>Endorsement) ----- | 279  |
| QUALIFICATION PROGRESS SUMMARY -----   | 297  |
| LIST OF REFERENCES -----   | 299  |



## ACKNOWLEDGEMENTS

The PQS Development Group gratefully acknowledges the assistance of the following personnel in writing this PQS:

|      |                  |                               |
|------|------------------|-------------------------------|
| CDR  | Bernie Gately    | SWOS, Newport, RI             |
| LCDR | James Lee        | COMDESRON SIX, Pascagoula, MS |
| LCDR | Steve Ligler     | USS Boxer (LHD-4)             |
| LCDR | Robert Rieger    | USS Bonhomme Richard (LHD-6)  |
| LCDR | Roland Roeder    | USS Tarawa (LHA-1)            |
| LCDR | Thadeous Smith   | USS Antietam (CG-54)          |
| LT   | Colin Corridan   | USS Curts (FFG-38)            |
| LT   | Gary Gray        | USS Comstock (LSD-45)         |
| LT   | Charles Hampton  | SWOS, Newport, RI             |
| LT   | Tom Mack         | COMNAVSURFPAC, San Diego, CA  |
| LT   | Lloyd Reinhold   | SWOS, Newport, RI             |
| LT   | Mark Venzor      | CMWC, Corpus Christi, TX      |
| LTJG | Charles Collins  | USS McClusky (FFG-41)         |
| LTJG | Matthew McMenamy | USS Lake Champlain (CG-57)    |

PQS Development Group personnel who provided direct support for this PQS:

|          |                     |                      |
|----------|---------------------|----------------------|
| ITCS(SW) | Wayne Killingsworth | LCPO                 |
| ATCS(AW) | Royce McKie         | Production Officer   |
| MMC(SW)  | Eliut Lopez         | Workshop Supervisor  |
| GSEC(SW) | Shawn McGrath       | Workshop Facilitator |
| Ms.      | Dallas Hansen       | Editorial Assistant  |
| Ms.      | Joyanne Lancer      | Editorial Assistant  |

The Model Manager for this PQS:

SWOS NEWPORT RI

DSN 948-7258





# INTRODUCTION

## PQS PROGRAM

This PQS program is a qualification system for officers and enlisted personnel where certification of a minimum level of competency is required prior to qualifying to perform specific duties. A PQS is a compilation of the minimum knowledge and skills that an individual must demonstrate in order to qualify to stand watches or perform other specific routine duties necessary for the safety, security or proper operation of a ship, aircraft or support system. The objective of PQS is to standardize and facilitate these qualifications.

## CANCELLATION

This Standard cancels and supersedes NAVEDTRA 43101 and 43101-4E.

## APPLICABILITY

This PQS is applicable to all those pursuing CIC Watch Officer, Officer of the Deck (Underway) and Officer of the Deck (Underway) platform endorsement. This PQS is a Prerequisite for Surface Warfare Officer (SWO) qualification:

- (1) NAVEDTRA 43496-1B CV/CVN Officer of the Deck Underway may be completed in lieu of watchstations 302 or 303 of this PQS:
- (2) Surface Warfare Officer eligibility and qualification requirements are delineated in OPAVINST 1412.2J:

## MODEL MANAGER

The Model Manager Command manages a specific PQS manual. This includes overseeing the process of monitoring and updating assigned PQS manuals from the standpoint of technical content and relevance within the community.

## INTRODUCTION (CONT'D)

### TAILORING

To command tailor this package, first have it reviewed by one or more of your most qualified individuals. Delete any portions covering systems and equipment not installed on your ship, aircraft or unit. Next, add any line items, fundamentals, systems and watchstations/workstations that are unique to your command but not already covered in this package. Finally, the package should be reviewed by the cognizant department head and required changes approved by the Commanding Officer or his designated representative. Retain the approved master copy on file for use in tailoring individual packages.

### QUALIFIER

The PQS Qualifier is designated in writing by the Commanding Officer to sign off individual watchstations. Qualifiers will normally be E-5 or above and, as a minimum, must have completed the PQS they are authorized to sign off. The names of designated Qualifiers should be made known to all members of the unit or department. The means of maintaining this listing is at the discretion of individual commands. For more information on the duties and responsibilities of PQS Qualifiers, see the PQS Unit Coordinator's Guide.

### CONTENTS

PQS is divided into three sections. The 100 Section (Fundamentals) contains the fundamental knowledge from technical manuals and other texts necessary to satisfactorily understand the watchstation/workstation duties. The 200 Section (Systems) is designed to acquaint you with the systems you will be required to operate at your watchstation/workstation. The 300 Section (Watchstations) lists the tasks you will be required to satisfactorily perform in order to achieve final PQS qualification for a particular watchstation/workstation. All three sections may not apply to this PQS, but where applicable, detailed explanations are provided at the front of each section.

### REFERENCES

The references used during the writing of this PQS package were the latest available to the workshop, however, the most current references available should be used when qualifying with this Standard.

### NOTES

Classified references may be used in the development of PQS. If such references are used, do not make notes in this book as answers to questions in this Standard may be classified.

## INTRODUCTION (CONT'D)

### TRAINEE

Your supervisor will tell you which watchstations/workstations you are to complete and in what order. Before getting started, turn to the 300 Section first and find your watchstation/workstation. This will tell you what you should do before starting your watchstation/workstation tasks. You may be required to complete another PQS, a school, or other watchstations/workstations within this package. It will also tell you which fundamentals and/or systems from this package you must complete prior to qualification at your watchstation/workstation. If you have any questions or are unable to locate references, contact your supervisor or qualifier. Good luck!

### PQS FEEDBACK REPORTS

This PQS was developed using information available at the time of writing. When equipment and requirements change, the PQS needs to be revised. The only way the PQS Development Group knows of these changes is by you, the user, telling us either in a letter or via the Feedback Report contained in the back of this book. You can tell us of new systems and requirements, or of errors you find.



## SUMMARY OF CHANGES

### CHANGES TO FUNDAMENTALS, SYSTEMS, AND WATCHSTATIONS:

| <b>Fundamental Title</b>   | <b>Action</b> | <b>Comment</b> |
|--|---------------|----------------|
| Safety Precautions   | Modified      | Updated refs   |
| Composite Warfare  | Modified      | Updated refs   |
| Command (CWC) Concept  |               |                |
| Operational Reports  | Modified      | Updated refs   |
| Combat Information Center (CIC) Mission                          | Modified      | Updated refs   |
| Combat Information Center (CIC) Plotting Procedures and Displays | Modified      | Updated refs   |
| Combat Information Center (CIC) Watch Organization and Personnel | Modified      | Updated refs   |
| Combat Information Center (CIC) Publications and Logs            | Modified      | Updated refs   |
| Radar  | Modified      | Updated refs   |
| Naval Tactical Data System (NTDS)/Combat Direction System (CDS)  | Modified      | Updated refs   |
| Combat Information Center (CIC) Special Evolutions               | Modified      | Updated refs   |
| Naval Communications   | Modified      | Updated refs   |
| Maneuvering Board  | Modified      | Updated refs   |
| Radio Propagation  | Modified      | Updated refs   |
| Signal Security  | Modified      | Updated refs   |
| U.S. Naval Assets  | Modified      | Updated refs   |
| Naval Gun and Ammunition   | Modified      | Updated refs   |
| Gunfire Control  | Modified      | Updated refs   |
| Naval Missile  | Modified      | Updated refs   |
| Air Defense (AD)/Antiship Missile Defense (ASMD)                 | Modified      | Updated refs   |
| Surface Warfare (SUW)  | Modified      | Updated refs   |
| Propagation of Sound in Water                                    | Modified      | Updated refs   |
| Sonar  | Modified      | Updated refs   |
| Antisubmarine Warfare (ASW) Communications                       | Modified      | Updated refs   |
| Antisubmarine Warfare (ASW) Organization                         | Modified      | Updated refs   |
| Antisubmarine Warfare (ASW) Aircraft and Sonobuoy                | Modified      | Updated refs   |

## SUMMARY OF CHANGES (CONT'D)

| <b>Fundamental Title</b>                      | <b>Action</b> | <b>Comment</b>  |
|---|---------------|-----------------|
| Antisubmarine Warfare (ASW) Tactics           | Modified      | Updated refs    |
| Electronic Warfare (EW)                       | Modified      | Updated refs    |
| Electronic Support (ES)                       | Modified      | Updated refs    |
| Electronic Attack (EA)                        | Modified      | Updated refs    |
| Electronic Protection (EP)                    | Modified      | Updated refs    |
| Military Deception (MILDEC)                   | Modified      | Updated refs    |
| Mine Warfare (MIW) Organization               | Modified      | Updated refs    |
| Mining  | Added         | New information |
| Mine Countermeasure                           | Modified      | Updated refs    |
| Amphibious Task Force/Task Group Organization | Modified      | Updated refs    |
| Amphibious Warfare Operations                 | Modified      | Updated refs    |
| Amphibious Landing Craft                      | Modified      | Updated refs    |
| Naval Surface Fire Support (NSFS)             | Modified      | Updated refs    |
| Naval Threat                                  | Modified      | Updated refs    |
| Bridge Equipment                              | Modified      | Updated refs    |
| Underway Bridge Watch                         | Modified      | Updated refs    |
| Deck Seamanship                               | Modified      | Updated refs    |
| Standard Commands                             | Modified      | Updated refs    |
| Anchoring                                     | Modified      | Updated refs    |
| Bouy Mooring                                  | Modified      | Updated refs    |
| Connected Underway Replenishment (CONREP)     | Modified      | Updated refs    |
| Aviation Operations on Surface Ships          | Modified      | Updated refs    |
| Towing  | Modified      | Updated refs    |
| Shiphandling                                  | Modified      | Updated refs    |
| Special/Emergency Evolutions                  | Modified      | Updated refs    |
| Weather                                       | Modified      | Updated refs    |
| Tactical Maneuvering                          | Modified      | Updated refs    |
| Nautical Charts and Publications              | Modified      | Updated refs    |
| Tides and Currents                            | Modified      | Updated refs    |
| Compass Error                                 | Modified      | Updated refs    |
| Navigation                                    | Modified      | Updated refs    |
| Navigation Rules                              | Modified      | Updated refs    |

## SUMMARY OF CHANGES (CONT'D)

| <b>Fundamental Title</b>  | <b>Action</b> | <b>Comment</b>                         |
|---|---------------|--|
| Visual Communications   | Modified      | Updated refs                           |
| Survival and Survival Equipment   | Modified      | Updated refs                           |
| Buoys   | Modified      | Updated refs                           |
| Combat Systems  | Modified      | Updated refs                           |
| Operational Sequencing System (CSOSS)   |               |  |
| Pollution Control   | Modified      | Updated refs                           |
| Marine Mammal Protection  | Added         | New information                        |
| Minor Caliber Weapons   | Added         | New information                        |
| <b>System Title</b>   | <b>Action</b> | <b>Comment</b>                         |
| Radar Equipment   | Modified      | Updated refs                           |
| Naval Tactical Data System (NTDS)   | Modified      | Updated refs                           |
| Naval Communications  | Modified      | Updated refs                           |
| Naval Gun   | Modified      | Updated refs                           |
| Gun and Missile Fire Control  | Modified      | Updated refs                           |
| Naval Missile   | Modified      | Updated refs                           |
| Surface Ship Sonar  | Modified      | Updated refs                           |
| Surface Ship Antisubmarine Warfare (ASW) Weapons  | Modified      | Updated refs                           |
| Information Warfare (IW)  | Added         | New System                             |
| Ship Control  | Modified      | Updated refs                           |
| Anchor Windlass   | Modified      | Updated refs                           |
| Anchor  | Modified      | Updated refs                           |
| Connected Underway Replenishment (CONREP)   | Modified      | Updated refs                           |
| Shiphandling  | Modified      | Updated refs                           |
| Mine Warfare (MIW) Weapons  | Added         | New System                             |
| Electronic Support (ES)   | Deleted       | Replaced with Information Warfare (IW) |
| <b>Watchstation Title</b>   | <b>Action</b> | <b>Comment</b>                         |
| Surface Warfare Officer (SWO) Combat Information Center Watch Officer (CICWO)                 | Modified      | New information                        |
| Surface Warfare Officer (SWO) Officer of the Deck (OOD) Underway (U/W)                        | Modified      | New information                        |
| Surface Warfare Officer (SWO) Officer of the Deck (OOD) Underway (U/W) (Platform Endorsement) | Added         | New qualification requirements         |





## WATCHSTATION REQUALIFICATIONS

Due to changes in policies, systems, or procedures, personnel dealing with the subject matter of this PQS may be required to requalify IAW NAVEDTRA 43100-1G, Ch. 5, PQS Unit Coordinator's Guide.

The following watchstations regardless of qualifications achieved in previous versions, shall be completed.

None.



## ACRONYMS USED IN THIS PQS

Not all acronyms or abbreviations used in this PQS are defined here. The Subject Matter Experts from the Fleet who wrote this Standard determined the following acronyms or abbreviations may not be commonly known throughout their community and should be defined to avoid confusion. If there is a question concerning an acronym or abbreviation not spelled out on this page nor anywhere else in the Standard, use the references listed on the line item containing the acronym or abbreviation in question.

|        |  |
|--------|--|
| ADC    | Acoustic Device Countermeasure                           |
| ADNS   | Automated Digital Networking System                      |
| ALMDS  | Airborne Laser Mine Detection System                     |
| AMNS   | Airborne Mine Neutralization system                      |
| ASMD   | Antiship Missile Defense                                 |
| BSP    | Battle Space Profiler                                    |
| CAP    | Combat Air Patrol  |
| CAPDS  | Chemical Point Detection Agent System                    |
| CD OPS | Counter Drug Operations                                  |
| CDLMS  | Link Monitoring System                                   |
| CDS    | Combat Direction System                                  |
| CEC    | Cooperative Engagement Capability                        |
| CMG    | Course Made Good   |
| CONREP | Connected Replenishment                                  |
| DCA    | Defensive Counter Air                                    |
| DFGMC  | Digital Fluxgate Magnetic Compass                        |
| DLS    | Decoy Launching System                                   |
| DTE    | Detect To Engage   |
| FADIZ  | Fleet Air Defense Identification Zone                    |
| FLIR   | Forward Looking Infrared Radar                           |
| IALA   | International Association of Lighthouse Authorities      |
| IBS    | Integrated Bridge System                                 |
| IPDS   | Integrated Point Detection System                        |
| ISAR   | Inverse Synthetic Aperature Radar                        |
| IVCS   | Interior Voice Communication System                      |
| JU     | Joint Unit   |
| LEADS  | Launch Expendable Acoustic Device System                 |
| LEO    | Law Enforcement Operations                               |
| LIO    | Leadership Interdiction Operations                       |
| MEDAL  | Mine Warfare Environmental Tactical Decision Aid Library |
| MIO    | Maritime Interception Operation                          |
| MIW    | Mine Warfare   |
| MOB    | Man Overboard  |
| MP     | Mission Package  |
| MRG    | Main Reduction Gear                                      |

## ACRONYMS USED IN THIS PQS (CONT'D)

|        |  |
|--------|--|
| NMMSS  | Naval Mast Mounted Sighting System       |
| OASIS  | Organic Airborne Mine Sweeping System    |
| OCSOT  | Overall Combat Systems Operability Test  |
| OPGEN  | Operating General                        |
| PCMS   | Passive Counter Measure System           |
| PMAP   | Protective Measures Assessment Protocol  |
| PMI    | Prevention of Mutual Interference        |
| RAM    | Rolling Airframe Missile                 |
| RAMICS | Rapid Airborne Mine Clearance System     |
| RMD    | Restricted Maneuvering Doctrine          |
| RMS    | Remote Mine hunting System               |
| RSC    | Radar Systems Coordinator                |
| SAU    | Search and Attack Unit                   |
| SORTS  | Status of Resources and Training Systems |
| SSDS   | Ship Self-Defense System                 |
| SVP    | Sound Velocity Profile                   |
| TADIL  | Tactical Data Link                       |
| TISS   | Thermal Imaging Sighting System          |
| TRDF   | Tactical Radio Direction Finder          |
| UNREP  | Underway Replenishment                   |
| VDS    | Variable Depth Sonar                     |
| VSP    | Voith Schneider Propulsion               |
| WAAS   | Wide Area Augmentation System            |
| WECAN  | Web-Centric ASW Network                  |
| WSM    | Water Space Management                   |

## 100 INTRODUCTION TO FUNDAMENTALS

### 100.1 INTRODUCTION

This PQS begins with a Fundamentals section covering the basic knowledge and principles needed to understand the equipment or duties to be studied. Normally, you would have acquired the knowledge required in the Fundamentals section during the school phase of your training. If you have not been to school or if you need a refresher, the references listed at the beginning of each fundamental will aid you in a self-study program. All references cited for study are selected according to their credibility and availability.

### 100.2 HOW TO COMPLETE

The fundamentals you will have to complete are listed in the watchstation (300 section) for each watchstation. You should complete all required fundamentals before starting the systems and watchstation portions of this PQS, since knowledge gained from fundamentals will aid you in understanding the systems and your watchstation tasks. When you feel you have a complete understanding of one fundamental or more, contact your Qualifier. If you are attempting initial qualification, your Qualifier will expect you to satisfactorily answer all line items in the fundamentals. If you are requalifying, completed the appropriate schools, or are seeking Platform Endorsement, your Qualifier may require you to answer representative line items to determine if you have retained the necessary knowledge for your watchstation. If your command requires an oral board or written examination for final qualification, you may be asked any questions from the fundamentals required for your watchstation.



## 101 SAFETY PRECAUTIONS FUNDAMENTALS

### References:

- [a] OPNAVINST 5100.19D (Change 1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
  - [b] Commanding Officer's Standing Orders
  - [c] Ship's Emission Control Bill
  - [d] OPNAVINST 5102.1C, Mishap Investigation and Reporting
  - [e] OPNAVINST 5090.1B (Change 4), Environmental and Natural Resources Program Manual
  - [f] Ship's Information Book (SIB)
  - [g] OPNAVINST 3500.39A, Operational Risk Management (ORM)
- 

101.1 Discuss the safety aspects of the following: [ref. a, ch. C9]

- a. Tag-out precautions
- b. Electrical fires
- c. First aid for electric shock
- d. Electronics and RF radiation hazards

---

(Signature and Date)

.2 Discuss the following safety precautions during small boat operations:  
[ref. a, ch. C4]

- a. Launch/retrieval
- b. Fueling
- c. Bringing a small boat along side

---

(Signature and Date)

.3 Discuss the safety procedures for personnel working aloft. [ref. a, ch. C8; ref. b]

---

(Signature and Date)

.4 Discuss the safety procedures for personnel working-over-the-side.  
[ref. a, ch. C8; ref. b]

---

(Signature and Date)

## **101 SAFETY PRECAUTIONS FUNDAMENTALS (CONT'D)**

101.5 Discuss the following line handling safety precautions:

- a. General precautions [ref. a, ch. C5]
- b. Natural lines [ref. a, ch. C5]
- c. Synthetic lines [ref. a, ch. C5]
- d. Wire rope [ref. a, ch. C5]
- e. Kevlar lines [ref. f]

---

(Signature and Date)

.6 Discuss the following ordnance safety precautions:

- a. General precautions [ref. a, ch. C14]
- b. Ordnance handling [ref. a, ch. C14]
- c. HERO [ref. c]
- d. Ordnance firing/launching [ref. a, ch. C14]

---

(Signature and Date)

.7 Discuss the following heavy weather safety precautions: [ref. a, ch. C16]

- a. Lifelines
- b. Tiedowns
- c. General precautions

---

(Signature and Date)

.8 Discuss abandon ship. [ref. a, ch. C17]

---

(Signature and Date)

.9 Discuss the following Aviation Operations safety precautions:

- a. General fire precautions [ref. a, ch. C12]
- b. FOD [ref. a, ch. C12]
- c. Aircraft crash and rescue [ref. a, ch. C12]
- d. Aircraft movement [ref. a, ch. C12; ref. b]

---

(Signature and Date)



## 101 SAFETY PRECAUTIONS FUNDAMENTALS (CONT'D)

101.10 Discuss the following types of afloat mishaps: [ref. d]

- a. Class A, B, and C mishaps [encl. 2]
- b. Special case reportable mishaps [encl. 2]
- c. MIR [encl. 5]
- d. MR [encl. 6]

---

(Signature and Date)

.11 Discuss the following in response to oil and hazardous substances: [ref. e, ch. 10]

- a. U.S. navigable waters
- b. U.S. ports
- c. Foreign ports
- d. Foreign navigable waters

---

(Signature and Date)

.12 Discuss the following HAZMAT precautions: [ref. a, ch. C23]

- a. General stowage
- b. Handling
- c. Disposal

---

(Signature and Date)

.13 Discuss the concept of ORM. [ref. g]

---

(Signature and Date)

.14 Explain the following as they apply to ORM: [ref. g]

- a. Identifying hazards
- b. Assessing hazards
- c. Making risk decisions
- d. Implementing controls
- e. Supervising

---

(Signature and Date)

## 102 COMPOSITE WARFARE COMMAND (CWC) CONCEPT FUNDAMENTALS

### References:

- [a] NWP 3-56A, Composite Warfare Commander's Manual  
 [b] Joint Pub 3-56, Tactical Command and Control Planning Guidance and Procedures for Joint Operations (Information Exchange Planning Guidance)
- 

102.1 Discuss the CWCs concept. [ref. a, ch. 2]

\_\_\_\_\_  
 (Signature and Date)

.2 Discuss the CWC command structure. [ref. a, ch. 2]

\_\_\_\_\_  
 (Signature and Date)

.3 Discuss the operational chain of command from the level of element to the Fleet Commander using task organization designators. [ref. a, ch. 2]

\_\_\_\_\_  
 (Signature and Date)

.4 Discuss the functions of the following Warfare Commanders and Coordinators:  
 [ref. a]

- a. CWC/OTC [ch. 3]
- b. Undersea Warfare Commander [ch. 5]
- c. Air Defense Commander [ch. 7]
- d. Surface Warfare Commander [ch. 6]
- e. Strike Warfare Commander [ch. 8]
- f. Information Warfare Commander [ch. 9]
- g. Air Resources Element Coordinator [ch. 10]
- h. Force Track Coordinator [ch. 8]
- i. Force Over-the-Horizon Targeting Coordinator [ch. 10]
- j. Screen Commander [ch. 10]
- k. Helicopter Element Coordinator [ch. 10]
- l. Submarine Element Coordinator [ch. 10]
- m. Maneuvering Coordinator [ch. 10]
- n. Force Weapons Coordinator [ch. 8]
- o. Maritime Interception Operations Commander [ch. 11]

## **102 COMPOSITE WARFARE COMMAND (CWC) CONCEPT FUNDAMENTALS (CONT'D)**

- 102.4      p.      Mine Warfare Commander [ch. 12]  
             q.      Sea Combat Commander [ch. 7]

---

(Signature and Date)

- .5      List the two-letter call sign for the Warfare Commanders/Coordinators listed in .4 above and their alternates where applicable. [ref. a, ch. 13]

---

(Signature and Date)

- .6      Discuss the functions of the following Joint Warfare Commanders and Coordinators: [ref. b]

- a.      Joint Forces Air Component Commander
- b.      Joint Special Operations Taskforce
- c.      Joint Forces Maritime Component Commander
- d.      Joint Forces Land Component Commander
- e.      Area Air Defense Commander
- f.      Sector Air Defense Commander
- g.      Regional Air Defense Commander
- h.      Joint Interface Control Officer

---

(Signature and Date)

## 103 OPERATIONAL REPORTS FUNDAMENTALS

### References:

- [a] NWP 1-03.1, Operational Reports
  - [b] NAVSUP P-485, Afloat Supply Procedures
  - [c] NTTP 1-03.3A, Status of Resources and Training System (SORTS)
  - [d] OPNAVINST 3100.6G, Special Incident Reporting
  - [e] NWP 1-03.41, Maritime Reporting System
  - [f] PACOMINST 5050-99, Blue Dart Reporting Procedures
- 

- 103.1 Explain the purpose of a CASREP and general situations in which one would be submitted. [ref. a, ch. 4]

\_\_\_\_\_  
(Signature and Date)

- .2 Describe the information contained in, and the time of submission for the following:  
[ref. a, ch. 4]

- a. Initial casualty report
- b. Update casualty report
- c. Correction casualty report
- d. Cancellation casualty report

\_\_\_\_\_  
(Signature and Date)

- .3 Discuss the interrelation between a CASREP and the following:

- a. 3-M system [ref. a, ch. 4]
- b. Supply system [ref. b, ch. 3]
- c. SORTS [ref. a, ch. 4]

\_\_\_\_\_  
(Signature and Date)

- .4 Discuss the purpose of, content of, and submission requirements for a MOVREP.  
[ref. a, chs. 9, 11, 13]

\_\_\_\_\_  
(Signature and Date)

## **103 OPERATIONAL REPORTS FUNDAMENTALS (CONT'D)**

103.5 Discuss the purpose of, content of, and submission requirements for a LOGREQ.  
[ref. a, ch. 7]

---

(Signature and Date)

.6 Discuss the purpose of the SORTS reporting system. [ref. c, ch. 1]

---

(Signature and Date)

.7 State the five readiness status data areas. [ref. c, ch. 5]

---

(Signature and Date)

.8 Discuss the general criteria for each of the C-rating categories and their relationships to the primary mission areas. [ref. c, ch. 5]

---

(Signature and Date)

.9 Discuss the information contained in the two parts of a SORTS message.  
[ref. c, ch. 3]

---

(Signature and Date)

.10 Discuss the submission requirements for a SORTS message. [ref. c, ch. 2]

---

(Signature and Date)

.11 Define primary and secondary mission areas. [ref. c, ch. 5]

---

(Signature and Date)

## 103 OPERATIONAL REPORTS FUNDAMENTALS (CONT'D)

103.12 Explain the purpose of, the submission requirements for, and the general situations for which each are submitted for the following OPREPs:

- a. Pinnacle [ref. d, ch. 2]
- b. Navy blue [ref. d, ch. 2]
- c. Unit SITREP [ref. d, ch. 2]
- d. Blue dart [ref. f]

---

(Signature and Date)

.13 State the purpose of the following maritime reports: [ref. e, ch. 1]

- a. AKNLDG
- b. Maritime unit mission execution order (green)
- c. Maritime unit TLAM-C mission order (indigo)
- d. Maritime force locator (locator)
- e. MSGCHANGEREPA
- f. Maritime mission analysis summary message (purple)
- g. TACELINT report
- h. Maritime unit availability/capability report (tan)
- i. Maritime unit ASSM mission order (turquoise)

---

(Signature and Date)

**104 COMBAT INFORMATION CENTER (CIC) MISSION FUNDAMENTALS**

## References:

- [a] NAVEDTRA 14204, Operations Specialist 3  
[b] NWP 3-20.6 (Series), Ship's Class Tactical Manual
- 

- 104.1 Discuss the primary and secondary missions of the CIC and include functions required for each mission area. [ref. a, ch. 1]

---

(Signature and Date)

- .2 Identify and describe the function of all CIC equipment. [ref. b]

---

(Signature and Date)

## 105 COMBAT INFORMATION CENTER (CIC) PLOTTING PROCEDURES AND DISPLAYS FUNDAMENTALS

### References:

- [a] NAVEDTRA 14204, Operations Specialist 3
  - [b] ATP 1(C), Allied Maritime Tactical Instructions and Procedures, Vol. I
  - [c] Worldwide FOTC SOP
  - [d] NWP 3-20.7, Afloat Over-the-Horizon Targeting (OTH-T) and Surveillance
- 

105.1 Describe the following CIC plots and status boards, and discuss the functions of each: [ref. a, ch. 1]

- a. Strategic plot
- b. Geographic plot
- c. Air summary
- d. Surface summary plot
- e. Communications status board
- f. Surface status board
- g. EW status board
- h. ES intercept status board
- i. Time bearing/time frequency plot

---

(Signature and Date)

.2 Discuss the principles of DR equipment operation to include: [ref. a, ch. 9]

- a. Course and speed input
- b. Effect of other variables (e.g. wind, current)
- c. Casualty procedures (Halifax plot)

---

(Signature and Date)

.3 Discuss the requirements and reasons for maintaining a navigational plot in CIC.  
[ref. a, ch. 8]

---

(Signature and Date)



## **105 COMBAT INFORMATION CENTER (CIC) PLOTTING PROCEDURES AND DISPLAYS FUNDAMENTALS (CONT'D)**

105.4 Discuss the use of the following grid systems as they apply to CIC:  
[ref. a, ch. 8]

- a. Polar coordinate
- b. Cartesian coordinate
- c. World geographic reference
- d. Military grid reference
- e. UTM

---

(Signature and Date)

.5 Describe the following DRT/DDRT/CADRT plotting symbols: [ref. a, ch. 10]

- a. Own ship
- b. Surface friendly
- c. Surface unknown
- d. Surface hostile
- e. Subsurface unknown
- f. Subsurface hostile
- g. Subsurface friendly
- h. Datum
- i. Man overboard
- j. Downed aircraft

---

(Signature and Date)

.6 Describe the following plotting symbology used on the air vertical plot:  
[ref. a, ch. 10]

- a. Air friendly
- b. Air unknown
- c. Air hostile
- d. CAP/DCA
- e. CAP/DCA station
- f. AEW
- g. Missile

---

(Signature and Date)

## **105 COMBAT INFORMATION CENTER (CIC) PLOTTING PROCEDURES AND DISPLAYS FUNDAMENTALS (CONT'D)**

105.7 Discuss proper plotting procedures on the DRT/DDRT/CADRT for the following tactical situations:

- a. Formation steaming [ref. a, ch. 10]
- b. USW [ref. a, ch. 10]
- c. Man overboard/aircraft in water [ref. a, ch. 9]
- d. NUDET [ref. b, ch. 12]
- e. Mine warfare [ref. a, ch. 10]

---

(Signature and Date)

.8 Discuss the procedure for RADFO plotting and state the function of the plot. [ref. b, ch. 12]

---

(Signature and Date)

.9 Discuss the type of surface-subsurface tracking information available from the DRT/DDRT/CADRT and how this information is used. [ref. a, ch. 10]

---

(Signature and Date)

.10 Discuss GCCS-M and its use in the battle group. [ref. c]

---

(Signature and Date)

.11 Describe fundamental OTH-T principles. [ref. c; ref. d, ch. 2]

---

(Signature and Date)

.12 Define GCCS-M communications and networks. [ref. c; ref. d, ch. 5]

---

(Signature and Date)

.13 Describe OTH-T administration and management requirements and OTH-T contact database management principles. [ref. c; ref. d, ch. 7]

---

(Signature and Date)

## 106 COMBAT INFORMATION CENTER (CIC) WATCH ORGANIZATION AND PERSONNEL FUNDAMENTALS

### References:

- [a] NAVEDTRA 14202, Operations Specialist 1 & C
  - [b] NAVEDTRA 14204, Operations Specialist 3
  - [c] OPNAVINST 3120.32C (Change 5), Standard Organization and Regulations Manual of the U.S. Navy (SORM)
  - [d] NWP 3-20.6 (Series), Ship's Class Tactical Manual
- 

- 106.1 Discuss the six general conditions of readiness and corresponding watch conditions, including the manning requirements for each. [ref. c, ch. 4; ref. d]

---

(Signature and Date)

- .2 Discuss the CICWO actions when increasing the condition of readiness. [ref. d]

---

(Signature and Date)

- .3 Discuss the duties and responsibilities of the following officer watchstations in CIC:

- a. TAO/Evaluator [ref. a, ch. 6; ref. b, ch. 1; ref. c, ch. 4; ref. d]
- b. Weapons Liaison Officer/Ship's Weapons Coordinator/Anti-air Warfare Coordinator [ref. b, ch. 1; ref. d]
- c. ASW Evaluator [ref. a, ch. 6; ref. c, ch. 4; ref. d]
- d. Surface Watch Officer (or equivalent) [ref. a, ch. 1; ref. b, ch. 1; ref. d]
- e. CICWO [ref. c, ch. 4; ref. d]
- f. SSTWC [ref. d]
- g. EWO [ref. b, ch. 1; ref. d]
- h. Surface/Subsurface Weapons Coordinator [ref. d]
- i. CSC [ref. d]

---

(Signature and Date)

## **106 COMBAT INFORMATION CENTER (CIC) WATCH ORGANIZATION AND PERSONNEL FUNDAMENTALS (CONT'D)**

106.4 Discuss the duties and responsibilities of the following enlisted watchstations in CIC:

- a. Surface Supervisor [ref. b, ch. 1, ref. d]
- b. Dead Reckoning Tracer DRT/DDRT/CADRT [ref. b, ch. 1; ref. d]
- c. Detection and Tracking Supervisor/RCO [ref. b, ch. 1; ref. d]
- d. AIC [ref. a, ch. 1; ref. b, ch. 1; ref. d]
- e. Air Tracker/Air Radar Operator [ref. a, ch. 1; ref. b, ch. 1; ref. d]
- f. ASTAC [ref. d]
- g. EW Supervisor [ref. a, ch. 1; ref. b, ch. 1; ref. d]
- h. Surface Tracker/Surface Radar Operator [ref. a, ch. 1; ref. b, ch. 1; ref. d]
- i. Navigation Plotter [ref. b, ch. 1; ref. d]
- j. CIC Watch Supervisor [ref. d]
- k. Database Manager [ref. d]
- l. Harpoon Engagement Planner [ref. d]
- m. Tomahawk Engagement Planner [ref. d]
- n. LCC Operator [ref. d]
- o. Identification Operator [ref. d]
- p. Sonar Supervisor [ref. d]
- q. ES (SLQ-32/WLR-14) Operator [ref. d]
- r. CSRO [ref. d]
- s. Radar Systems Controller [ref. d]
- t. Own Ship's Display Assistant [ref. d]
- u. Track Supervisor [ref. d]

---

(Signature and Date)

.5 Discuss the use and purpose of sound-powered telephone circuits, nets and MC systems in terms of, information passed and stations on the circuit in the following evolutions: [ref. b, ch. 2]

- a. ASW
- b. AW
- c. SUW
- d. MIW
- e. Command and control
- f. Weapons control
- g. Special evolutions
- h. Strike warfare

---

(Signature and Date)

## **106 COMBAT INFORMATION CENTER (CIC) WATCH ORGANIZATION AND PERSONNEL FUNDAMENTALS (CONT'D)**

106.6 Identify and describe contents of required CIC reports to bridge. [ref. d]

---

(Signature and Date)

.7 Discuss the following tactical/administrative information available on the bridge and in CIC, that the oncoming CICWO should be familiar with, prior to relieving the watch: [ref. c, ch. 4; ref. d]

- a. Tactical
- b. Navigational
- c. Internal shipboard

---

(Signature and Date)

.8 Describe the verbal exchange required as part of the CICWO relieving process. [ref. d]

---

(Signature and Date)

## 107 COMBAT INFORMATION CENTER (CIC) PUBLICATIONS AND LOGS FUNDAMENTALS

### References:

- [a] NAVEDTRA 14204, Operations Specialist 3
  - [b] Ship's Combat Systems Doctrine (Class Specific)
  - [c] APP-4 (A), Allied Maritime Structured Messages, Vol. 1
  - [d] NWP 65 (Series), Class Tactical Manual
  - [e] NAVEDTRA 14096, Electronics Warfare Technician 3 & 2
  - [f] NAVEDTRA 14308, Operations Specialist, Vol. 1
  - [g] NWP 3-20.6 (Series), Ship's Class Tactical Manual
- 

107.1 Discuss the information available in the following:

- a. OORDER [ref. f, ch. 4]
- b. OPLAN [ref. f, ch. 4]
- c. OPTASK [ref. c, ch. 1]
- d. OPGEN [ref. c, ch. 1]
- e. OPTASK supplement [ref. c, ch. 1]

---

(Signature and Date)

.2 Discuss the general subject matter and application of the following publications:

- a. NWP [ref. f, ch. 4]
- b. TYCOM training manuals [ref. c, ch. 1]
- c. NATO/Allied Tactical Doctrine Publications (ATP, AXP) [ref. a, ch. 4]
- d. JANAP [ref. c, ch. 1]
- e. FXP [ref. f, ch. 4]
- f. FICM [ref. c, ch. 1]
- g. ACP [ref. b]
- h. NTP [ref. b]
- i. TACMEMO [ref. f, ch. 4]
- j. CIC/Combat Systems Doctrine [ref. b]
- k. Class tactical manual [ref. d]
- l. NWP 3-20.6 (Series), Ship's Class Tactical Manual (CSTP) [ref. g]

---

(Signature and Date)

## **107 COMBAT INFORMATION CENTER (CIC) PUBLICATIONS AND LOGS FUNDAMENTALS (CONT'D)**

107.3 Discuss the use of the following CIC logs and the procedures for maintaining each:

- a. CIC watch log [ref. a, ch. 4]
- b. Radiotelephone log [ref. a, ch. 4]
- c. Radar performance log [ref. b]
- d. Radar navigation log [ref. a, ch. 4]
- e. Radar contact log [ref. a, ch. 4]
- f. DRT/DDRT log [ref. b]
- g. Publication custody log [ref. a, ch. 4]
- h. ES intercept log [ref. e, ch. 3]
- i. Sonar contact log [ref. a, ch. 4]

---

(Signature and Date)

**108      RADAR FUNDAMENTALS**

## References:

- [a]      NAVEDTRA 14308, Operations Specialist, Vol. 1
  - [b]      NAVEDTRA 14182, NEETS Module 10--Intro to Wave Propagation, Transmission Lines, and Antennas
  - [c]      NAVEDTRA 14099A, Fire Controlman, Vol. 02-Fire Control Systems and Radar Fundamentals
  - [d]      NAVEDTRA 14203, Operations Specialist 2
  - [e]      NAVAIR 01-75PAC-1, NATOPS Flight Manual, P-3C Aircraft
- 

108.1      Discuss the effects of the following on radar operations:

- a.      EMI [ref. b, ch. 1]
- b.      Pulse width [ref. c, ch. 1]
- c.      PRR/PRF [ref. c, ch. 1]
- d.      Frequency [ref. c, ch. 1]
- e.      Power out [ref. c, ch. 1]
- f.      Beam width [ref. c, ch. 1]
- g.      MTI [ref. c, ch. 1]
- h.      Doppler [ref. c, ch. 1]
- i.      Antenna rotation rate [ref. c, ch. 1]
- j.      ADT [ref. d, ch. 8]
- k.      STC [ref. c, ch.1]

---

(Signature and Date)

.2      Discuss the effects of the following on the detection capability of radar:

- a.      Terrain [ref. c, ch. 1]
- b.      Contact composition [ref. d, ch. 2]
- c.      Radar cross section [ref. c, ch. 1]
- d.      Environmental condition [ref. b, ch. 1]
- e.      EA environment [ref. d, ch. 2]
- f.      Environmental landmarks [ref. d, ch. 2]
- g.      Target altitude [ref. c, ch. 1]

---

(Signature and Date)



## 108 RADAR FUNDAMENTALS (CONT'D)

108.3 Define the following:

- a. Lobing [ref. c, ch. 1]
- b. Ducting [ref. c, ch. 1]
- c. Sea return [ref. c, ch. 1]
- d. Absorption [ref. c, ch. 1]
- e. Clutter [ref. c, app. I]
- f. Radar horizon [ref. c, ch. 1]
- g. Refraction [ref. c, ch. 1]
- h. Attenuation [ref. c, ch. 1]
- i. Skip distance [ref. c, ch. 1]
- j. Reflection [ref. b, ch. 4]
- k. Fade zone [ref. c, ch. 1]
- l. Ring time [ref. b, ch. 1]
- m. Diffraction [ref. b, ch. 1]

---

(Signature and Date)

.4 Discuss the primary applications of the following types of radar:

- a. Surface search [ref. c, ch. 2]
- b. Air search (2D) [ref. c, ch. 2]
- c. Air search (3D) [ref. c, ch. 2]
- d. Phased array [ref. c, ch. 5]
- e. Fire control [ref. c, ch. 2]
- f. Navigation [ref. a, ch. 8]
- g. Approach control [ref. c, ch. 2]
- h. ISAR [ref. e, ch. 5]

---

(Signature and Date)

.5 Discuss the function of TACAN. [ref. e, ch. 21]

---

(Signature and Date)

## **108      RADAR FUNDAMENTALS (CONT'D)**

108.6      Discuss the following as applied to the MK 12 IFF system: [ref. a, ch. 8]

- a.      Modes available
- b.      Code combination available with each mode
- c.      Emergency squawk available with each system
- d.      Mode 4 squawk
- e.      Security
- f.      SIF/DI

---

(Signature and Date)

.7      Discuss actions taken upon receipt of the following IFF codes:  
[ref. a, ch. 8; ref. d]

- a.      7500
- b.      7600
- c.      7700
- d.      4X 7500
- e.      4X 7600
- f.      4X 7700

---

(Signature and Date)

## 109 NAVAL TACTICAL DATA SYSTEM (NTDS)/COMBAT DIRECTION SYSTEM (CDS) FUNDAMENTALS

### References:

- [a] NAVEDTRA 14202, Operations Specialist 1 & C
  - [b] NWP 3-20.6 (Series), Ship's Class Tactical Manual
  - [c] NAVEDTRA 14203, Operations Specialist 2
  - [d] Joint Multi-Tactical Data Link (TDL) Operating Procedures
  - [e] APP-4 (A), Allied Maritime Structured Messages, Vol. 1
  - [f] NWP 3-20.7, Afloat Over-the-Horizon Targeting (OTH-T) and Surveillance
  - [g] Ship's Information Book (SIB)
- 

109.1 Discuss the function of NTDS/CDS in a task force environment. [ref. a, ch. 1]

\_\_\_\_\_  
(Signature and Date)

.2 Describe the duties of the following personnel (as applicable) as they relate to NTDS:

- a. FWC [ref. a, ch. 1]
- b. TAO [ref. a, ch. 1]
- c. FTC [ref. a, ch. 1]
- d. SWC/WCO/AAWC [ref. a, ch. 1]
- e. Track Supervisor/TIC/ID Operator [ref. a, ch. 1]
- f. FOC Operator [ref. a, ch. 1]
- g. RSO/RSC [ref. a, ch. 1]
- h. AIC [ref. a, ch. 1]
- i. ASTAC/REMRO/SENSO [ref. a, ch. 1; ref. b]
- j. EW Supervisor [ref. a, ch. 1]
- k. SSWC/SSSC/USWOC [ref. a, ch. 1]
- l. USWO/USWFCO [ref. b]
- m. Target Acquisition System Tracker [ref. d]
- n. RCO [ref. d]
- o. DTM [ref. d]

\_\_\_\_\_  
(Signature and Date)

## **109 NAVAL TACTICAL DATA SYSTEM (NTDS)/COMBAT DIRECTION SYSTEM (CDS) FUNDAMENTALS (CONT'D)**

109.3 Describe the following basic NTDS symbols: [ref. c, ch. 8]

- a. Ownship
- b. DLRP
- c. Air, surface, and subsurface friendly/unknown/hostile track
- d. Engaged track
- e. CAP aircraft
- f. CAP station
- g. USW/patrol aircraft
- h. USW helicopter
- i. Downed pilot
- j. Aircraft carrier
- k. Man overboard
- l. Hostile/friendly missile
- m. Datum
- n. Sonobuoy
- o. Mine

---

(Signature and Date)

.4 Discuss the following as they apply to NTDS:

- a. PU/JU [ref. c, ch. 8]
- b. NCS [ref. c, ch. 8]
- c. RU [ref. c, ch. 8]
- d. Picket [ref. c, ch. 8]
- e. Radio silence [ref. c, ch. 8]
- f. GRU [ref. c, ch. 8]
- g. Gateway controller [ref. c, ch. 8]
- h. Roll call [ref. c, ch. 8]
- i. Broadcast [ref. c, ch. 8]
- j. Net cycle time [ref. d]
- k. D/TQ [ref. d]
- l. Data forwarder [ref. d]

---

(Signature and Date)

.5 Discuss the purpose of and procedure used by the FTC for gridlock. [ref. c, ch. 8]

---

(Signature and Date)

## **109 NAVAL TACTICAL DATA SYSTEM (NTDS)/COMBAT DIRECTION SYSTEM (CDS) FUNDAMENTALS (CONT'D)**

- 109.6 Define DLRP and describe the considerations for establishing/changing it.  
[ref. c, ch. 8]

---

(Signature and Date)

- .7 Describe the data links associated with NTDS, including the function, advantages, capabilities, and limitations of each: [ref. c, ch. 8]

- a. LINK 11
- b. LINK 16
- c. LINK 4A
- d. HAWK LINK

---

(Signature and Date)

- .8 Discuss data link management information contained in OPTASK link.  
[ref. e, ch. 1]

---

(Signature and Date)

- .9 Discuss the function of OTH-T communications in a task force organization.  
[ref. f, ch. 5]

---

(Signature and Date)

- .10 Describe the duties of the following personnel as they relate to OTH-T tactical data links: [ref. f, ch. 7]

- a. FOTC
- b. Database (GCCS-M) Operator

---

(Signature and Date)

## **109 NAVAL TACTICAL DATA SYSTEM (NTDS)/COMBAT DIRECTION SYSTEM (CDS) FUNDAMENTALS (CONT'D)**

109.11 Discuss the following as they apply to the OTH-T tactical data links: [ref. f, ch. 7]

- a. Participating unit
- b. Net control station
- c. Radio silence
- d. HIT broadcast unit

---

(Signature and Date)

.12 Describe the data links associated with the OTH-T architecture. [ref. f, ch. 7]

---

(Signature and Date)

.13 Describe the interaction between GCCS-M equipped ships and the force OTH-T picture. [ref. f, ch. 7]

---

(Signature and Date)

.14 Discuss data link management information contained in OPTASK FOTC. [ref. f, ch. 7]

---

(Signature and Date)

.15 Discuss the SGS/AC. [ref. f, ch. 7]

---

(Signature and Date)

.16 Identify and describe the function of all LINK equipment in CIC. [ref. g]

---

(Signature and Date)

## 110 COMBAT INFORMATION CENTER (CIC) SPECIAL EVOLUTIONS FUNDAMENTALS

### References:

- [a] NWP 3-20.6 (Series), Ship's Class Tactical Manual
  - [b] NAVEDTRA 14202, Operations Specialist 1 & C
  - [c] NWP 3-50.1A, Navy Search and Rescue (SAR) Manual
  - [d] Joint Pub 3-50.2, Doctrine for Joint Combat Search and Rescue
  - [e] NAVEDTRA 14204, Operations Specialist 3
  - [f] Dutton's Navigation and Piloting (Maloney), 14<sup>th</sup> Edition
  - [g] NWP 3-04.1M, Helicopter Operating Procedures for Air Capable Ships
  - [h] CNSF-CNAFINST 3530.4, Surface Ship Navigation Department Organization and Regulations Manual (NAVDORM)
  - [i] ATP 6, Vol. I, Allied Doctrine of Mine Warfare Planning and Principles
  - [j] NWP 3-07.11, Maritime Interception Operations
- 

110.1 Discuss the control and assist functions performed by CIC, including information provided to control stations, during the following evolutions:

- a. AD/ASMD [ref. a; ref. b, chs. 1, 13; ref. e, ch. 1]
- b. SUW [ref. a; ref. b, chs. 1, 13; ref. e, ch. 1]
- c. ASW [ref. a; ref. b, chs. 1, 6; ref. e, ch. 1]
- d. Amphibious operations [ref. a; ref. b, ch. 4]
- e. SAR [ref. a; ref. b, chs. 1, 8; ref. e, ch. 1]
- f. Navigation and piloting [ref. a; ref. b, chs. 1, 2]
- g. Man overboard [ref. a; ref. e, ch. 9]
- h. Flight operations [ref. a; ref. g, ch. 1, app. A]
- i. NSFS [ref. a; ref. b, chs. 1, 5]
- j. Strike warfare [ref. a]
- k. OTH-T [ref. a]
- l. Plane guard [ref. a]
- m. General quarters [ref. a]
- n. Mine warfare [refs. a, i]
- o. VBSS (MIO/LIO/CD) [ref. j, ch. 5]

---

(Signature and Date)

## **110 COMBAT INFORMATION CENTER (CIC) SPECIAL EVOLUTIONS FUNDAMENTALS (CONT'D)**

110.2 Discuss the indications that would be received and the actions required during the following events:

- a. Submarine disaster incident-event (SUBLOOK/SUBMISS/SUBSUNK)  
[ref. a; ref. c, chs. 9, 10]
- b. SAR mission [ref. a; ref. c, chs. 4, 6, 8 thru 11; ref. d, chs. 3 thru 7]

---

(Signature and Date)

.3 Discuss the responsibilities of CIC in EMCON/HERO. [ref. a; ref. b, ch. 9]

---

(Signature and Date)

.4 Discuss the duties and responsibilities of the following members of the Radar Piloting Team: [ref. a; ref. b, ch. 2; ref. e, ch. 8]

- a. Piloting Officer
- b. Navigation Plotter
- c. Radar Navigation Log Keeper
- d. Surface Search/Navigation Radar Operator
- e. Fire Control Radar Talker
- f. Sonar/Depth Sounder Talker
- g. Shipping Officer
- h. Lookout Talker/Plotter
- i. Surface Search/Shipping Radar Operator
- j. Surface Contact Status Board/Surface Summary Plotter

---

(Signature and Date)

.5 Discuss the capabilities of the following equipment with respect to navigation:

- a. Fire control radar [ref. a; ref. e, ch. 8]
- b. Sonar [ref. a; ref. e, ch. 8; ref. f, ch. 36]
- c. Fathometer [ref. a; ref. f, chs. 7, 11]
- d. Surface search radar [ref. a; ref. e, ch. 8]
- e. Electronic charting display [ref. h]

---

(Signature and Date)



## 111 NAVAL COMMUNICATIONS FUNDAMENTALS

### References:

- [a] NTP 4, Naval Telecommunications Publication
  - [b] NAVEDTRA 14204, Operations Specialist 3
  - [c] NAVEDTRA 14189, NEETS Module 17--Radio Frequency Communications Principles
  - [d] ACP 125(E), Communication Instructions Radiotelephone Procedure
  - [e] NWP 3-56A, Composite Warfare Commander's Manual, Ch. 13
  - [f] NWP 6-01A, Basic Operational Communications Doctrine (CDF/CLF/CIVE)
  - [g] NAVCAMSEASTPAC/WESTPAC Instruction C2000.3C, Fleet Telecommunications Procedures, Ch. 11
  - [h] ALCOM 016/92, All Command Message COMSEC Mod
  - [i] NWP 3-50.1A, Navy Search and Rescue (SAR) Manual
  - [j] UHF MILSATCOM Operator's Handbook
  - [k] EHF Low Data Rate (LDR) and Medium Data (MDR) System User's Handbook
  - [l] SHF Defense Satellite Communications System (DSCS) Naval Operators Handbook
- 

### 111.1 Define the following:

- a. Call sign [ref. a, ch. 7]
- b. Precedence [ref. b]
- c. Circuit discipline [ref. c, ch. 12]
- d. Free net [ref. c, ch. 12]
- e. Directed net [ref. c, ch. 12]
- f. Plaindress [ref. b]
- g. Abbreviated plaindress [ref. b]
- h. Immediate executive [ref. b]
- i. Delayed executive [ref. b]
- j. Nonexecutive [ref. b]

---

(Signature and Date)

### .2 Discuss the following types of communications watches: [ref. b]

- a. Guard
- b. Cover
- c. Copy
- d. Listen

---

(Signature and Date)

## 111 NAVAL COMMUNICATIONS FUNDAMENTALS (CONT'D)

111.3 Discuss the proper procedures in naval voice communications, including the following: [ref. b]

- a. Operating rules
- b. Five basic parts of transmissions
- c. Radio check, including use and meaning of prowords
- d. Following proword meanings and uses:
  - 1. Wilco
  - 2. Break
  - 3. Exempt
  - 4. Wait/wait out
  - 5. Correction
  - 6. Say again
  - 7. Say again all after/all before/word after/word before
  - 8. Figures
  - 9. Execute
  - 10. Execute to follow
  - 11. Immediate execute
  - 12. I spell
  - 13. Over
  - 14. Out
  - 15. Roger
  - 16. Disregard this transmission
  - 17. Verify
- e. Callups/collective callups

---

(Signature and Date)

.4 Discuss the usage of daily-changing call signs to include: [ref. f, ch. 10]

- a. Normal usage
- b. Suppression, normal, and irregular

---

(Signature and Date)

## 111 NAVAL COMMUNICATIONS FUNDAMENTALS (CONT'D)

111.5 Discuss the following circuits in terms of usual frequency range, type of circuit (voice or teletype), units on the net, where it is normally guarded, and the use of the net:

- a. TF/TG tactical/warning [ref. e]
- b. TF/TG reporting [ref. e]
- c. C&R nets [ref. e]
- d. High command [ref. f, ch. 11]
- e. Fleet broadcast [ref. f, ch. 11]
- f. Primary ship-to-shore [ref. f, ch. 11]
- g. Task group operations/admin (TG ORESTES) [ref. f, ch. 11]
- h. Fleet tactical/warning [ref. f, ch. 11]
- i. Harbor operations/admin (harbor common) [ref. g]
- j. Tug control [ref. g]
- k. Distress frequencies [ref. i, ch. 6]
- l. Bridge-to-bridge [ref. f, ch. 11]
- m. Battle force e-mail [ref. k]
- n. Chat [ref. j]
- o. INMARSAT/POTS [ref. l]
- p. EHF [ref. k]
- q. SHF [ref. l]

---

(Signature and Date)

.6 Discuss the purpose and functions of the following: [ref. d; ref. f, ch. 2]

- a. NAVCOMPARS
- b. NAVMACS
- c. CUDIXS
- d. ADNS

---

(Signature and Date)

.7 Discuss the operation and purpose of the following communications relay systems:  
[ref. f, ch. 7]

- a. AUTOCAT
- b. MIDDLEMAN

---

(Signature and Date)

## 111 NAVAL COMMUNICATIONS FUNDAMENTALS (CONT'D)

111.8 Define the following: [ref. c, ch. 10; ref. h]

- a. TACTERM
- b. ANDVT
- c. Vinson
- d. STU-III/STE

---

(Signature and Date)

.9 Discuss the information that may be obtained from OPORDER Annex Kilo, OPTASK COMMS, and a ship's communication frequency plan. [ref. e]

---

(Signature and Date)

.10 Discuss the capabilities, limitations, advantages, and disadvantages of the following:

- a. SATCOM [ref. c, ch. 15]
- b. DAMA [ref. a, ch. 6]
- c. OTCIXS [ref. e]
- d. TADIXS [ref. e]
- e. TACINTEL [ref. e]

---

(Signature and Date)

## 112 MANEUVERING BOARD FUNDAMENTALS

### References:

- [a] NAVEDTRA 14204, Operations Specialist 3  
 [b] HO Pub No. 217, Maneuvering Board Manual
- 

112.1 Describe the following items and state their use in maneuvering board operations:  
 [ref. b]

- a. Nautical slide rule
- b. Distance and speed scales
- c. Logarithmic time, speed, and distance nomograms
- d. Polar coordinate plot

---

(Signature and Date)

.2 Discuss the following terms and state their interrelationships in maneuvering board operation: [ref. b]

- a. Polar coordinate plotting
- b. Proportional scaling
- c. R ship
- d. M ship
- e. Relative motion
- f. True quantities (distance, bearing, speed, time)
- g. Relative quantities (distance, bearing, speed)
- h. MRM
- i. DRM
- j. SRM
- k. CPA
- l. em vector
- m. er vector
- n. rm vector

---

(Signature and Date)

.3 Describe the procedures involved in using known components of a vector diagram to determine unknown components. [ref. b]

---

(Signature and Date)

## 112 MANEUVERING BOARD FUNDAMENTALS (CONT'D)

112.4 Discuss the following and describe how each should be incorporated into a maneuvering board solution: [ref. b]

- a. Advance
- b. Transfer
- c. Acceleration
- d. Deceleration
- e. Tactical diameter

---

(Signature and Date)

.5 State the three-minute rule and describe its application to maneuvering board operations. [ref. a, ch. 11]

---

(Signature and Date)

.6 Discuss the relationship between the maneuvering board plot and the PPI display. [ref. a, ch. 11]

---

(Signature and Date)

.7 Discuss the value of proper labeling during extended maneuvering board operations. [ref. a, ch. 11]

---

(Signature and Date)

.8 Define the following terms and discuss the procedures required to solve them: [ref. b]

- a. True wind
- b. Relative wind
- c. Apparent wind
- d. Desired wind
- e. ew vector
- f. rw vector

---

(Signature and Date)

## 113 RADIO PROPAGATION FUNDAMENTALS

### References:

- [a] NAVEDTRA 14182, NEETS Module 10--Intro to Wave Propagation, Transmission Lines, and Antennas  
 [b] NAVEDTRA 14189, NEETS Module 17--Radio Frequency Communications Principles
- 

113.1 Define the following: [ref. b]

- a. Amplitude [app. I]
- b. Wavelength [app. I]
- c. Cycle [app. I]
- d. Frequency [app. I]
- e. Phase [ch. 1]

---

(Signature and Date)

.2 Discuss the effects of the following on radio wave propagation:

- a. Atmospheric conditions [ref. a, ch. 2]
- b. Meteorological effects [ref. a, ch. 2]
- c. Terrain [ref. a, ch. 2]
- d. Modulation types [ref. b, ch. 1]
- e. Refraction [ref. a, ch. 1]
- f. Diffraction [ref. a, ch. 1]
- g. Reflection [ref. a, ch. 1]
- h. Trapping [ref. a, ch. 1]
- i. Ionospheric variations [ref. b, ch. 4]
- j. Radio frequency interference [ref. a, ch. 2]
- k. Attenuation [ref. a, ch. 2]
- l. EMI [ref. a, ch. 2]
- m. Improper topside maintenance [ref. b, ch. 4]
- n. Scattering [ref. a, ch. 2]
- o. Absorption [ref. a, ch. 2]

---

(Signature and Date)

## **113 RADIO PROPAGATION FUNDAMENTALS (CONT'D)**

113.3 Discuss propagation characteristics and uses in naval communications for each of the following frequency bands: [ref. b, ch. 4]

- a. ELF
- b. VLF
- c. LF
- d. MF
- e. HF
- f. VHF
- g. UHF
- h. SHF
- i. EHF

---

(Signature and Date)



## 114 SIGNAL SECURITY FUNDAMENTALS

### References:

- [a] NWP 6-01A, Basic Operational Communications Doctrine (CDF/CLF/CIVE)
  - [b] Voice Operating Procedures Training Manual
  - [c] NAVEDTRA 14189, NEETS Module 17--Radio Frequency Communications Principles
  - [d] NAVEDTRA 14308 Operations Specialist, Vol.1
- 

114.1 Define the following terms:

- a. SIGSEC [ref. a, ch. 10]
- b. Transmission security [ref. b]
- c. Emission security [ref. c, ch. 3]
- d. Imitative communications deception [ref. b]
- e. Authentication [ref. b, Mod. V, ch. 3]
- f. GINGERBREAD [ref. b, Mod. V, ch. 3]
- g. EMCON [ref. d, ch. 1]

---

(Signature and Date)

.2 Explain the function of the following: [ref. b]

- a. EEFI
- b. BEADWINDOW reporting

---

(Signature and Date)

.3 Discuss types of disclosures afforded protection by the EEFI list. [ref. b]

---

(Signature and Date)

.4 Discuss the proper BEADWINDOW reporting procedures. [ref. b]

---

(Signature and Date)

## **114 SIGNAL SECURITY FUNDAMENTALS (CONT'D)**

114.5 Define the following as applied to COMSEC: [ref. c, ch.1]

- a. Meaconing
- b. Intrusion
- c. Jamming
- d. Interference

---

(Signature and Date)

.6 Discuss the proper use of the following COMSEC aids:

- a. Authentication [ref. b]
- b. NUCO table (LANT)/numeral cipher (PAC) [ref. b]

---

(Signature and Date)

.7 When is authentication mandatory? [ref. b]

---

(Signature and Date)

.8 Describe the GINGERBREAD procedures. [ref. b]

---

(Signature and Date)

## 115 U.S. NAVAL ASSETS FUNDAMENTALS

### References:

- [a] NWP 1-11.01 (Rev. A), Characteristics and Capabilities of U.S. Navy Combatant Ships
  - [b] NWP 11-3, Characteristics and Capabilities of U.S. Navy Aircraft, Ch. 1
  - [c] Jane's Fighting Ships, 1995-96 (98<sup>th</sup> Edition)
  - [d] Jane's All the World's Aircraft
  - [e] NWP 6-02.5, Introduction to Tactical Data Digital Information Link J and Quick Reference Guide
- 

115.1 For the following classes of ships, answer the questions:

- A. Describe the different hull types included within each class.
- B. State the primary mission.
- C. Name the propulsion system.
- D. Name the associated weapons systems.
- E. State the logistics support capabilities.
- F. State the aircraft capabilities.

- a. T-AH [ref. c]
- b. T-AE [ref. c]
- c. AGF [ref. c]
- d. AO [ref. c]
- e. T-AOE [ref. c]
- f. T-AFS [ref. c]
- g. T-AKE [ref. c]
- h. T-AGOS [ref. c]
- i. T-AKR [ref. c]
- j. ARS [ref. c]
- k. AS [ref. c]
- l. CG [ref. a, ch. 3; ref. c]
- m. CV [ref. a, ch. 2; ref. c]
- n. CVN [ref. a, ch. 2; ref. c]
- o. DD [ref. a, ch. 3; ref. c]
- p. DDG [ref. a, ch. 3; ref. c]
- q. FFG [ref. a, ch. 3; ref. c]
- r. LCC [ref. a, ch. 4; ref. c]
- s. LHA [ref. a, ch. 4; ref. c]
- t. LHD [ref. a, ch. 4; ref. c]
- u. AO(J) [ref. a, ch. 4; ref. c]
- v. LPD [ref. a, ch. 4; ref. c]
- w. LSD [ref. a, ch. 4; ref. c]
- x. LST [ref. a, ch. 4; ref. c]
- y. MCM [ref. a, ch. 5; ref. c]
- z. MHC [ref. a, ch. 5; ref. c]

## **115 U.S. NAVAL ASSETS FUNDAMENTALS (CONT'D)**

- 115.1      aa.    PC class patrol boat [ref. c]  
             ab.    HSV [ref. c]

---

(Signature and Date)

- 115.2      For the following types of aircraft and their variants, answer the questions:

- A.    State the primary mission and effective range.  
B.    Name the associated weapon systems.  
C.    Identify basing (land/sea).

- a.    F-14 A/B/D Tomcat [ref. b]  
b.    F/A-18 A/B/C/D Hornet [ref. b]  
c.    F/A-18 E/F Super Hornet [ref. b]  
d.    E/A-18 G AEA Hornet [ref. b]  
e.    EA-6B Prowler/EF-18 [ref. b]  
f.    S-3 Viking [ref. b]  
g.    E-2 Hawkeye [ref. b]  
h.    C-2 Greyhound [ref. b]  
i.    AV-8 Harrier [ref. b]  
j.    SH-60 B/F HH-60H Sea Hawk [ref. b]  
k.    MH-60R Strike Hawk [ref. b]  
l.    CH-53 Sea Stallion [ref. b]  
m.    CH-46 Sea Knight [ref. b]  
n.    AH-1 Sea Cobra [ref. b]  
o.    P-3 Orion [ref. b]  
p.    B-52 Stratofortress [ref. d]  
q.    C-130 Hercules [ref. b]  
r.    E-3 Sentry (AWACS) [ref. d]  
s.    EP-3 Aires [ref. b]  
t.    MH-53 Sea Dragon [ref. b]  
u.    E-8 JSTARS [ref. e, ch. III]  
v.    F-15 Eagle [ref. e, app. A]  
w.    F-16 Falcon [ref. e, app. A]  
x.    RC-135 Rivetjoint [ref. e, app. A]  
y.    F/A-22 Raptor [ref. e, app. A]

---

(Signature and Date)

## **115 U.S. NAVAL ASSETS FUNDAMENTALS (CONT'D)**

115.3 For the following classes of submarines, answer the questions:

- A. State the primary mission.
  - B. Discuss possible secondary missions.
  - C. Name the associated weapon systems.
- 
- a. SSGN-726-729 Ohio [ref. a, ch. 6; ref. c]
  - b. SSBN-730 Henry M. Jackson [ref. c]
  - c. SSN-774 Virginia [ref. c]
  - d. SSN-688 Los Angeles [ref. a, ch. 6; ref. c]
  - e. SSN-21 Seawolf [ref. a, ch. 6; ref. c]

---

(Signature and Date)

**116 NAVAL GUN AND AMMUNITION FUNDAMENTALS**

## References:

- [a] NAVSEA SW030-AA-MMO-010 (Rev. 2), Navy Gun Type Ammunition
  - [b] NAVEDTRA 14324, Gunner's Mate
  - [c] NAVSEA OP 3347 (Rev. 2, Change 13), U.S. Navy Ordnance Safety Precautions
  - [d] NAVSEA SW010-AF-ORD-010, Identification of Ammunition
- 

116.1 Define the following:

- a. Ambient temperature [ref. b, ch. 6]
- b. Cold gun [ref. c, app. A]
- c. Cookoff [ref. c, app. A]
- d. Hangfire [ref. c, app. A]
- e. Hot gun [ref. c, app. A]
- f. Misfire [ref. c, app. A]
- g. Caliber [ref. c, ch. 8]
- h. Mount [ref. c, ch. 6]
- i. Turret [ref. c, ch. 8]
- j. Dual-purpose gun [ref. c, ch. 8]
- k. Semiautomatic gun [ref. c, ch. 8]
- l. Automatic gun [ref. c, ch. 8]
- m. Rapid fire gun [ref. c, ch. 8]
- n. Safety cutouts [ref. c, ch. 8]
- o. Firing cutouts [ref. c, ch. 8]

---

(Signature and Date)

.2 Describe the following ammunition classes/projectile features: [ref. b, ch. 3]

- a. Fixed
- b. Separated (semifixed)
- c. Ogive
- d. Bourrelet
- e. Body
- f. Rotating band

---

(Signature and Date)

## 116 NAVAL GUN AND AMMUNITION FUNDAMENTALS (CONT'D)

116.3 Discuss the use and characteristics of the following projectiles: [ref. b, ch. 3]

- a. Armor piercing
- b. Common
- c. VT-RF
  - 1. SD
  - 2. NSD
- d. VT-IR
- e. HC
- f. HE/MT-PD
- g. HE/CVT
- h. High fragmentation
- i. Illumination
- j. White phosphorous
- k. VT-NF & MTF-NF
- l. BL&P
- m. GP (infrared, laser)
- n. Drill

---

(Signature and Date)

.4 Discuss the purpose and meaning of naval ammunition color coding, including the following: [ref. b, ch. 3]

- a. Olive drab
- b. Light blue
- c. Yellow band
- d. Brown band
- e. Silver/aluminum band

---

(Signature and Date)

.5 Discuss the use and characteristics of the following propelling charges: [ref. a, ch. 2]

- a. Full service
- b. Reduced charge
- c. Clearing charge

---

(Signature and Date)

## **116 NAVAL GUN AND AMMUNITION FUNDAMENTALS (CONT'D)**

116.6 Discuss the following forces and how they operate ammunition fuzes: [ref. b, ch. 4]

- a. Setback
- b. Centrifugal force
- c. Creep
- d. Impact

---

(Signature and Date)

.7 Discuss the use and characteristics of the following fuzes: [ref. b, ch. 4]

- a. BDF
- b. ADF
- c. Variable-time fuze (VT-IR, VT-RF)
- d. PDF
- e. MTF

---

(Signature and Date)

.8 Discuss the mission of guns in naval warfare. [ref. a, ch. 1]

---

(Signature and Date)

.9 Discuss the difference between maximum range and maximum effective range.  
[ref. a, ch. 10]

---

(Signature and Date)



**117 GUNFIRE CONTROL FUNDAMENTALS**

## References:

- [a] NAVEDTRA 14099A, Fire Controlman, Vol. 02-Fire Control Systems and Radar Fundamentals
  - [b] NAVEDTRA 14097, Fire Control Supervisor
  - [c] NWP 3-20.6 (Series), Ship's Class Tactical Manual
- 

117.1 Define the following: [ref. a, ch. 1]

- a. Line-of-sight
- b. Gun target line (line-of-fire)
- c. Level
- d. Cross-level
- e. Sight angle
- f. Sight deflection
- g. Elevation
- h. Parallax
- i. Bearing, elevation, range rates

---

(Signature and Date)

.2 State the basic steps involved in solving the fire control problem. [ref. a, ch. 1]

---

(Signature and Date)

.3 Discuss the advantages and disadvantages of using the TWS fire control radar as compared to a continuous wave radar. [ref. a, ch. 2]

---

(Signature and Date)

.4 Explain MK 15 close-in weapon system closed loop tracking/fire control system. [ref. c]

---

(Signature and Date)

## **117 GUNFIRE CONTROL FUNDAMENTALS (CONT'D)**

117.5 Discuss the circumstances/conditions that indicate a need for battery alignment.  
[ref. b, ch. 3]

---

(Signature and Date)

**118 NAVAL MISSILE FUNDAMENTALS**

## References:

- [a] NAVEDTRA 14324, Gunner's Mate  
[b] NWP 3-20.6 (Series), Ship's Class Tactical Manual
- 

118.1 Define the following: [ref. a, ch. 9]

- a. Seeker head
- b. Doppler predict

---

(Signature and Date)

.2 Discuss the purpose of the DSOT in relation to missile system reliability.  
[ref. a, ch. 10]

---

(Signature and Date)

.3 Discuss the function of the missile guidance system in the missile fire control problem. [ref. b]

---

(Signature and Date)

.4 Discuss the principles of operation of the following missile guidance systems:  
[ref. a, ch. 9]

- a. Semiactive homing
- b. Active homing
- c. Passive homing (RF, IR, HOJ, HOD)
- d. Command guidance

---

(Signature and Date)

.5 Discuss the tactical employment of the following missiles: [ref. b]

- a. Sea sparrow
- b. VLA
- c. Standard missile
- d. Hellfire
- e. Harpoon
- f. Tomahawk

## 118 NAVAL MISSILE FUNDAMENTALS (CONT'D)

- 118.5
- g. Stinger
  - h. Penguin
  - i. RAM

---

(Signature and Date)

- .6 Discuss the guidance systems, launching systems, and radar systems of the missiles listed in 118.5 (above). [ref. b]

---

(Signature and Date)

- .7 Discuss the interface between missiles and gunfire control systems. [ref. b]

---

(Signature and Date)

- .8 Discuss the dud and misfire procedures for naval missiles. [ref. b]

---

(Signature and Date)

- .9 Discuss the safety hazard associated with fuel exhaust from the following missiles:  
[ref. b]

- a. Sea sparrow
- b. VLA
- c. Standard missile
- d. Hellfire
- e. Harpoon
- f. Tomahawk
- g. Stinger
- h. Penguin
- i. RAM

---

(Signature and Date)

## 119      **AIR DEFENSE (AD)/ANTISHIP MISSILE DEFENSE (ASMD) FUNDAMENTALS**

### References:

- [a]      NWP 3-01.01, Antiair Warfare
  - [b]      NWP 3-01.10, Antiair Warfare Commanders' Manual
  - [c]      NAVEDTRA 14202, Operations Specialist 1 & C
  - [d]      NAVEDTRA 14204, Operations Specialist 3
  - [e]      APP-4 (A), Allied Maritime Structured Messages, Vol. 1
  - [f]      ATP 1(C), Allied Maritime Tactical Instructions and Procedures, Vol. I
  - [g]      NAVEDTRA 14203, Operations Specialist 2
  - [h]      COMSURFWARDEVGRU TACMEMO A-23010-2-97, Air Warfare Planning Guide
- 

119.1      Discuss the function of the following manned watchstations (as appropriate) during AW Conditions I and III on NTDS-equipped ships:

- a.      Commanding Officer [ref. c, ch. 1]
- b.      CIC Officer [ref. c, ch. 1]
- c.      TAO [ref. c, ch. 1]
- d.      WCO/SWC/AAWC [ref. c, ch. 1]
- e.      Track Supervisor [ref. c, ch. 1]
- f.      Intercept Controller [ref. c, ch. 1]
- g.      Identification Operator [ref. c, ch. 1]
- h.      Air Detector Tracker [ref. c, ch. 1]
- i.      Weapons Tracker [ref. c, ch. 1]
- j.      Height Size Operator, Radar Set Console Operator, and ADT Operator [ref. d, ch. 1]
- k.      EW Supervisor [ref. c, ch. 1]
- l.      Surface Tracker [ref. c, ch. 1]
- m.      SSWC [ref. c, ch. 1]
- n.      FCSC/WEC [ref. c, ch. 1]
- o.      EC/MEC [ref. c, ch. 1]
- p.      Air Controllers [ref. d, ch. 1]
- q.      CSC [ref. c, ch. 1]

---

(Signature and Date)

## **119 AIR DEFENSE (AD)/ANTISHIP MISSILE DEFENSE (ASMD) FUNDAMENTALS (CONT'D)**

119.2 Discuss the responsibilities of the following in an AD/ASMD environment:  
[ref. g, ch. 4]

- a. OTC/CWC
- b. ADC
- c. Alternate Air Defense Coordinator (AC)
- d. Sector Anti-air Defense Coordinator
- e. LADC
- f. Missile ships
- g. Surface pickets
- h. Airborne pickets
- i. Air control units
- j. Individual ships
- k. PIRAZ ship
- l. Tomcat
- m. Area defense ships
- n. Point defense ships
- o. ACA
- p. CAP/DCA
- q. Redcrown/greencrown

---

(Signature and Date)

.3 Discuss the content of the Navywide AD plan. [ref. e]

---

(Signature and Date)

.4 Discuss the concepts of AD/ASMD to include the following: [ref. a]

- a. Defense in depth [ch. 2]
- b. Disposition-of-the-force [ch. 3]
- c. Operational deception [chs. 4, 5]
- d. Coordination and control [ch. 6]

---

(Signature and Date)

## **119 AIR DEFENSE (AD)/ANTISHIP MISSILE DEFENSE (ASMD) FUNDAMENTALS (CONT'D)**

119.5 Discuss the following AD/ASMD readiness conditions: [ref. a, ch. 4]

- a. WARNING RED
- b. WARNING YELLOW
- c. WARNING WHITE

---

(Signature and Date)

.6 Discuss the firing restrictions inherent in the following weapons orders:

- a. WEAPONS FREE [ref. f, ch. 6]
- b. WEAPONS TIGHT [ref. f, ch. 6]
- c. WEAPON SAFE [ref. f, ch. 6]
- d. BREAK ENGAGE [ref. c, ch. 3]
- e. CEASE FIRE [ref. d, ch. 4]
- f. HOLD FIRE [ref. f, ch. 6]

---

(Signature and Date)

.7 Discuss the missile firing policy currently used to include the following:  
[ref. a, ch. 5]

- a. Shoot-look-shoot
- b. Shoot-shoot-look-shoot

---

(Signature and Date)

.8 State the criteria to be met for a contact to be classified as the following:  
[ref. a, app. E]

- a. Unknown
- b. Bogey
- c. Hostile
- d. Friendly
- e. Vampire

---

(Signature and Date)

## **119 AIR DEFENSE (AD)/ANTISHIP MISSILE DEFENSE (ASMD) FUNDAMENTALS (CONT'D)**

119.9 Discuss RTF/MRR procedures. [ref. a, app. B]

---

(Signature and Date)

.10 Discuss planning factors that must be evaluated prior to stationing AD assets.  
[ref. a, ch. 2; ref. b, ch. 3]

---

(Signature and Date)

.11 Discuss possible stationing combinations, given a mix of AD surface platforms,  
using (at a minimum) the following concepts: [ref. a]

- a. Missile barriers [ch. 4]
- b. Missile trap [ch. 4]
- c. Direct support [ch. 4]
- d. AD screening [ch. 4]
- e. Surface radar protection [ch. 3]

---

(Signature and Date)

.12 Discuss the following parameters of operational fleet air-to-air missiles/air-to-surface  
weapons: [ref. a, chs. 3, 6]

- a. Range
- b. Guidance
- c. Tracking/engagement advantages or limitations

---

(Signature and Date)

.13 Describe the stationing and intercept techniques to optimize the use of fleet aircraft  
and air-to-air missiles to include the following: [ref. a]

- a. CAP/DCA stations [ch. 5, app. C]
- b. Deck-launched interceptors and alert conditions [ch. 5]

---

(Signature and Date)



## **119      AIR DEFENSE (AD)/ANTISHIP MISSILE DEFENSE (ASMD) FUNDAMENTALS (CONT'D)**

119.14      Discuss ASMD tactics and assets to include the following: [ref. g, ch. 4]

- a.      Identification/threat early warning
- b.      Composition-of-force
- c.      Tactical deception (electronic/mechanical)
- d.      EW expendables
- e.      Considerations for a single ship/formations
- f.      Use of EA-6B/E-3B

---

(Signature and Date)

.15      Discuss the relationships between the following components and subdivisions:

- a.      AW area [ref. a, ch. 2]
- b.      Surveillance area [ref. a, ch. 3]
- c.      Destruction area [ref. a, ch. 5]
- d.      Vital area [ref. a, ch. 2]
- e.      AW axis/threat axis [ref. a, ch. 2]
- f.      MEZ [ref. a, ch. 4]
- g.      FEZ [ref. a, ch. 3]
- h.      JEZ [ref. a, ch. 3]
- i.      Missile free area [ref. a, ch. 2]
- j.      Missile tight zone [ref. a, ch. 4]
- k.      Crossover zone [ref. a, ch. 4; ref. b, ch. 2]
- l.      Crossover line [ref. a, ch. 4; ref. b, ch. 2]
- m.      CAP/DCA corridor [ref. a, ch. 4; ref. b, ch. 2]
- n.      FADIZ [ref. h, ch. 5]
- o.      CIEA [ref. a, ch. 3]

---

(Signature and Date)

## **119      AIR DEFENSE (AD)/ANTISHIP MISSILE DEFENSE (ASMD) FUNDAMENTALS (CONT'D)**

119.16      For the items listed below:

- A.      Discuss the function of the R/T circuit.
- B.      State the essential elements of information required for the reports issued on the R/T circuits.
  
- a.      TG/TF command net [ref. a, ch. 4]
- b.      TG/TF tactical and screen tactical [ref. d, ch. 3]
- c.      Local AD C&R [ref. a, ch. 4]
- d.      CAP/DCA control [ref. d, ch. 3]
- e.      HICOM [ref. c, ch. 4]
- f.      EW coordination and reporting net [ref. a, ch. 5]
- g.      AD coordination and reporting net [ref. a, ch. 4]
- h.      LINK coordination net [ref. a, ch. 4]

---

(Signature and Date)

## 120 SURFACE WARFARE (SUW) FUNDAMENTALS

### References:

- [a] NWP 3-20.6 (Series), Ship's Class Tactical Manual
  - [b] NWP 3-20.1, Antisurface Warfare Commander's Manual
  - [c] NWP 3-56A, Composite Warfare Commander's Manual
  - [d] NWP 3-20.3, Surface Ship Antisurface Warfare Tactics
  - [e] ATP 1(C), Allied Maritime Tactical Instructions and Procedures, Vol. I
  - [f] NAVEDTRA 14202, Operations Specialist 1 & C
  - [g] NWP 3-20.7, Afloat Over-the-Horizon Targeting (OTH-T) and Surveillance
  - [h] NWP 3-03.1E, Tomahawk Land Attack Missile (TLAM C/D) Employment Manual
  - [i] NWP 3-03.2C, Tomahawk Land Attack Missile (TLAM) Launch Platform and Weapons Systems Tactics, UC-1
  - [j] NWP 3-20.71A, Surface Ship Harpoon Weapon System and Tactics
- 

120.1 Discuss the functional watchstations manned during SUW operations. [ref. a]

\_\_\_\_\_  
(Signature and Date)

.2 Define the responsibilities of the following: [ref. a]

- a. Bridge
- b. CIC/OTH-T team
- c. Weapons control
- d. Electronic warfare center
- e. TAO

\_\_\_\_\_  
(Signature and Date)

.3 Define the responsibilities of the following in SUW operations:

- a. CWC [ref. c, ch. 3]
- b. OTC [ref. c, ch. 3]
- c. Screen Commander [ref. c, ch. 10]
- d. SAG Commander [ref. d, ch. 2]
- e. HAG Commander [ref. e]
- f. SUWC [ref. c, ch. 6]
- g. ASWC [ref. c, ch. 5]
- h. STWC and AREC [ref. c, chs. 8, 10]
- i. FOTC [ref. c, ch. 10]
- j. ECO [ref. c, ch. 10]
- k. Sea Combat Commander [ref. c, ch. 6]

## **120 SURFACE WARFARE (SUW) FUNDAMENTALS (CONT'D)**

- 120.3 l. MIWC [ref. c, ch. 11]  
m. MCMC [ref. c, ch. 11]

---

(Signature and Date)

- .4 List and discuss the tactical voice communications circuits used in SUW.  
[ref. b, ch. 4]

---

(Signature and Date)

- .5 List and discuss the four phases of SAG operations. [ref. e, ch. 8]

---

(Signature and Date)

- .6 Discuss the importance of EMCON in SUW. [ref. d, ch. 2]

---

(Signature and Date)

- .7 Discuss coordinated surface operations by surface ships, fixed-wing aircraft, and  
helicopters. [ref. d, ch. 4]

---

(Signature and Date)

- .8 Discuss responses to the following threats: [ref. f, ch. 3]

- a. FPB  
b. Swarm  
c. Small boat

---

(Signature and Date)

- .9 Discuss the basic concepts of OTH-T. [ref. g, ch. 2]

---

(Signature and Date)

- .10 Discuss OTH-T methods used by LAMPS MK III. [ref. g, chs. 4, 6]

---

(Signature and Date)

## **120 SURFACE WARFARE (SUW) FUNDAMENTALS (CONT'D)**

- 120.11 Discuss organic and inorganic OTH-T sensors available to the battle group.  
[ref. g, app. A-1]

---

(Signature and Date)

- .12 Discuss the use of GCCS-M, OTCIXS/TADIXS, and net precedence in SUW.  
[ref. g, app. D]

---

(Signature and Date)

- .13 Define the following SUW terms:

- a. Offensive SUW [ref. d, ch. 2]
- b. Defensive SUW [ref. d, ch. 2]
- c. Afloat correlation [ref. d, ch. 5]
- d. PACQ [ref. j, ch. 6]
- e. Tattletale [ref. d, ch. 5]
- f. Marker [ref. d, ch. 5]
- g. Countermarker [ref. d, ch. 5]
- h. WAS strike [ref. b, ch. 5]
- i. SUCAP/TACAIR [ref. b, ch. 5]
- j. STOT [ref. i, ch. 3]
- k. DTOT [ref. i, ch. 3]
- l. Area of vulnerability [ref. h, ch. 4]
- m. EPFOM [ref. j, ch. 6]

---

(Signature and Date)

## 121 PROPAGATION OF SOUND IN WATER FUNDAMENTALS

### References:

- [a] NWP 3-21.3, Surface Ship Antisubmarine Warfare (ASW) Principles
  - [b] NWP 3-21.34, Surface Ship Acoustic Prediction Systems and Tactics
  - [c] ATP 28(A), Allied Antisubmarine Warfare Manual
  - [d] ATP 1(C), Allied Maritime Tactical Instructions and Procedures, Vol. I
- 

### 121.1 Define the following:

- a. Positive temperature gradient [ref. c, ch. 2]
- b. Negative temperature gradient [ref. c, ch. 2]
- c. Isothermal [ref. c, Glossary]
- d. Layer [ref. a, app. B]
- e. Layer depth [ref. c, ch. 2]
- f. Surface duct [ref. c, ch. 2]
- g. Attenuation [ref. c, Glossary]
- h. Absorption [ref. c, ch. 2]
- i. Scattering [ref. c, ch. 2]
- j. Reflection [ref. c, ch. 2]
- k. Refraction [ref. c, Glossary]
- l. Afternoon effect [ref. c, Glossary]
- m. Doppler [ref. c, Glossary]
- n. Reverberation [ref. a, app. B]
- o. Mutual interference [ref. a, ch. 4]
- p. Broadband noise [ref. a, app. B]
- q. Narrowband noise [ref. a, app. A]
- r. Shadow zone [ref. a, app. B]

---

(Signature and Date)

### .2 Discuss the following range prediction terms: [ref. d, ch. 9]

- a. PSR
- b. TSR

---

(Signature and Date)

## **121 PROPAGATION OF SOUND IN WATER FUNDAMENTALS (CONT'D)**

121.3 Discuss the effects of the following on sound propagation: [ref. c, ch. 2]

- a. Temperature
- b. Pressure (density)
- c. Salinity
- d. Marine life
- e. Wind and wave action
- f. Currents
- g. Afternoon effect
- h. Ocean fronts and eddies

---

(Signature and Date)

.4 Discuss the following active and/or passive sound propagation paths: [ref. b, ch. 2]

- a. CZ
- b. Direct path
- c. BB
- d. Sound channels

---

(Signature and Date)

.5 Define the following terms as used in the sonar equations: [ref. a, app. A]

- a. Target strength
- b. Source level
- c. Noise level (ambient/self-noise)
- d. Recognition differential
- e. Directivity index
- f. Propagation loss
- g. Signal excess
- h. Figure-of-merit

---

(Signature and Date)

.6 Discuss the active and passive sonar equations. [ref. a, app. A]

---

(Signature and Date)

## **121      PROPAGATION OF SOUND IN WATER FUNDAMENTALS (CONT'D)**

121.7      Discuss the use of the active and passive sonar equations in shipboard range prediction. [ref. a, app. A]

---

(Signature and Date)

.8      Discuss the data received from an XBT/BSP drop. [ref. b, ch. 4]

---

(Signature and Date)

.9      Discuss the use of shipboard range prediction systems. [ref. a, ch. 4]

---

(Signature and Date)



## 122 SONAR FUNDAMENTALS

### References:

- [a] NAVEDTRA 14309, Integrated Undersea Surveillance Systems Operations  
 [b] NWP 3-21.3, Surface Ship Antisubmarine Warfare (ASW) Principles
- 

### 122.1 Define the following:

- a. Sonar consoles [ref. a, ch. 3]
- b. Element [ref. a, ch. 3]
- c. Stave [ref. a, ch. 3]
- d. Transducer [ref. a, ch. 3]
- e. Sonar dome [ref. a, ch. 3]
- f. Baffles [ref. a, app. A]
- g. Operating frequencies [ref. a, ch. 3]
- h. Pulse length [ref. b, app. A]
- i. Sector center [ref. a, ch. 3]
- j. Sector width [ref. a, ch. 3]
- k. Stern cursor [ref. a, ch. 3]
- l. Towed arrays [ref. b, ch. 4, app. A]

---

(Signature and Date)

- .2 Discuss the basic principles of operation of surface ship active/passive sonars.  
 [ref. b, app. B]

---

(Signature and Date)

- .3 Discuss the effects of the ship's speed on predicted sonar ranges. [ref. b, ch. 4]

---

(Signature and Date)

- .4 Discuss the effects of weather and sea state on predicted sonar ranges.  
 [ref. b, ch. 4]

---

(Signature and Date)

## 122 SONAR FUNDAMENTALS (CONT'D)

122.5 Discuss the effects of a sonar contact passing through the baffles. [ref. a, ch. 3]

---

(Signature and Date)

.6 Discuss mutual interference between active surface sonar systems and active/passive systems. [ref. b, ch. 4]

---

(Signature and Date)

.7 Explain how the following factors influence contact classification: [ref. b, ch. 4]

- a. Bottom topography
- b. Echo quality
- c. Echo strength
- d. Currents (charted)
- e. Wrecks (charted)
- f. Other sensors (including lookouts, MAD, radar, fathometer, ES)
- g. Doppler
- h. Target track
- i. Intelligence
- j. Operator experience
- k. Marine life

---

(Signature and Date)

.8 Discuss the capabilities and mission of the IUSS. [ref. b, ch. 4]

---

(Signature and Date)

.9 Discuss the advantages and disadvantages of passive towed arrays versus hull-mounted sonars. [ref. b, app. A]

---

(Signature and Date)

## **122 SONAR FUNDAMENTALS (CONT'D)**

122.10 Discuss the advantages and disadvantages of active versus passive operations.  
[ref. b, ch. 2, app. A]

---

(Signature and Date)

## 123 ANTISUBMARINE WARFARE (ASW) COMMUNICATIONS FUNDAMENTALS

### References:

- [a] NAVEDTRA 14309, Integrated Undersea Surveillance Systems Operations
  - [b] NWP 3-56A, Composite Warfare Commander's Manual
  - [c] NWP 3-21.3, Surface Ship Antisubmarine Warfare (ASW) Principles
  - [d] NWP 3-20.6 (Series), Ship's Class Tactical Manual
  - [e] FXP-1 (Rev. J), Antisubmarine Warfare (ASW) Exercises
  - [f] NWP 55-2-2 (Rev. F), Tactical Airborne Information Document (TACAID) for ASW Aircraft
  - [g] NWP 6-01.3 (Rev. A), Submarine Tactical Communications
- 

123.1 Discuss the function of the following external communication circuits with respect to ASW:

- a. TF/TG tactical [ref. b, ch. 13]
- b. ASW C&R [ref. b, ch. 5]
- c. ASW OTH C&R [ref. b, ch. 5]
- d. ASW air control nets [ref. d]
- e. SACNETs [ref. b, ch. 13]
- f. Hawklink [ref. d]

---

(Signature and Date)

.2 Discuss the flow of information and associated watchstations through the following internal communication circuits: [ref. d]

- a. 1JS
- b. 61JS
- c. 8JP
- d. 21JS
- e. 21MC
- f. 29MC
- g. IVCS

---

(Signature and Date)

## **123 ANTISUBMARINE WARFARE (ASW) COMMUNICATIONS FUNDAMENTALS (CONT'D)**

123.3 Discuss the methods of underwater communications associated with ASW:

- a. Underwater telephone [ref. a, ch. 10]
- b. IACS [ref. c, app. A]
- c. Probe alert [ref. c, app. A]
- d. CW hand-key sonar [ref. a, ch. 3]
- e. SUS [ref. e, ch. 3]
- f. Smokes and flares [ref. e, app. C]
- g. SLOT buoys/ATAC buoys [ref. c, ch. 5]
- h. DLC buoy [ref. g]

---

(Signature and Date)

.4 Discuss surface/subsurface emergency communications and Uncle Joe procedures. [ref. e, ch. 3]

---

(Signature and Date)

.5 Discuss the safety information that must be passed to a submarine preparing to surface. [ref. e, ch. 3]

---

(Signature and Date)

.6 Discuss the procedures used upon contacting unidentified or hostile submarines in Situation One through Situation Six. [ref. f, ch. 1]

---

(Signature and Date)

**124 ANTISUBMARINE WARFARE (ASW) ORGANIZATION FUNDAMENTALS**

## References:

- [a] NWP 3-56A, Composite Warfare Commander's Manual
  - [b] ATP 28(A), Allied Antisubmarine Warfare Manual
  - [c] NWP 3-20.6 (Series), Ship's Class Tactical Manual
- 

124.1 Discuss the responsibilities of the following commanders in the external ASW organization:

- a. TF/TG Commanders [ref. a, ch. 5]
- b. CWC [ref. a, ch. 3]
- c. ASW Commander [ref. a, ch. 5]
- d. Alternate ASW Commander [ref. a, ch. 5]
- e. Screen Commander [ref. a, ch. 10]
- f. SAU Commander [ref. b, ch. 10]
- g. SAC [ref. b, ch. 10]
- h. SEC [ref. a, ch. 10]
- i. HEC [ref. a, ch. 10]

---

(Signature and Date)

.2 Discuss the following ASW control stations, their functions, and manning during ASW operations: [ref. c]

- a. Bridge
- b. CIC
- c. UBFCs
- d. Sonar control
- e. LCCS
- f. SVTT control station
- g. LAMPS

---

(Signature and Date)

.3 Discuss the responsibilities of the following personnel (as applicable) during ASW operations: [ref. c]

- a. Commanding Officer
- b. TAO
- c. OOD
- d. JOOD

## **124      ANTISUBMARINE WARFARE (ASW) ORGANIZATION FUNDAMENTALS (CONT'D)**

- 124.3      e.    ASW Evaluator  
             f.    ASW Fire Control Officer  
             g.    Sonar Supervisor  
             h.    ASTAC  
             i.    Attack console personnel  
             j.    Sonar Operators  
             k.    DRT/DDRT plotters  
             l.    EW Operators  
             m.    Lookouts  
             n.    EOOW  
             o.    SVTT/Launcher Captain

---

(Signature and Date)

## 125      **ANTISUBMARINE WARFARE (ASW) AIRCRAFT AND SONOBUOY FUNDAMENTALS**

### References:

- [a]      NWP 55-2-2 (Rev. F), Tactical Airborne Information Document (TACAID) for ASW Aircraft
  - [b]      ATP 28(A), Allied Antisubmarine Warfare Manual
  - [c]      NAVEDTRA 14309, Integrated Undersea Surveillance Systems Operations
  - [d]      NWP 3-21.3, Surface Ship Antisubmarine Warfare (ASW) Principles
  - [e]      ATP 1(C), Allied Maritime Tactical Instructions and Procedures, Vol. I
  - [f]      NTTP 3-22.1-P3, P-3C Tactical Manual, Vol. 1
- 

125.1      Discuss the following ASW aircraft sensors:

- a.      Visual [ref. b, ch. 5]
- b.      Radar [ref. b, ch. 5]
- c.      IRDS/FLIR [ref. b, ch. 5]
- d.      MAD [ref. b, ch. 5]
- e.      ES [ref. b, ch. 5]
- f.      Dipping sonar [ref. b, ch. 6]
- g.      Sonobuoys [ref. b, ch. 5]
- h.      ISAR [ref. f, ch. 3]

---

(Signature and Date)

.2      Discuss the principles of operation and use of the following:

- a.      DIFAR [ref. b, ch. 5]
- b.      VLADs [ref. b, ch. 5]
- c.      MCJR [ref. b, ch. 5]
- d.      Acoustic processors (AN/SQQ-28) [ref. d, app. B]
- e.      AN/SRQ-4, data links [ref. c, ch. 4]
- f.      DICASS [ref. b, Glossary]
- g.      AN/ARR-75 antenna [ref. d]

---

(Signature and Date)



## **125 ANTISUBMARINE WARFARE (ASW) AIRCRAFT AND SONOBUOY FUNDAMENTALS (CONT'D)**

- 125.3 Discuss the tactical use of sonobuoys to detect, classify, and localize submarines. [ref. b, ch. 5]

---

(Signature and Date)

- .4 List the mission, functions, sensors, and weapons of the following in an ASW environment: [ref. a, ch. 3]

- a. P-3 Orion
- b. S-3 Viking
- c. SH-60R Sea
- d. SH-60B Sea Hawk
- e. SH-60F Ocean Hawk

---

(Signature and Date)

- .5 Define the following ASW aircraft control terms: [ref. e, ch. 6]

- a. Close
- b. Loose
- c. Broadcast
- d. Positive
- e. Advisory

---

(Signature and Date)

- .6 Discuss the advantages and disadvantages of ASW aircraft versus surface ships in an ASW environment. [ref. d, ch. 4]

---

(Signature and Date)

## 126 ANTISUBMARINE WARFARE (ASW) TACTICS FUNDAMENTALS

### References:

- [a] ATP 28(A), Allied Antisubmarine Warfare Manual
  - [b] ATP 1(C), Allied Maritime Tactical Instructions and Procedures, Vol. I
  - [c] NWP 3-21.3, Surface Ship Antisubmarine Warfare (ASW) Principles
  - [d] NWP 3-21.35, Surface Ship Active and Passive Sonar Systems and Tactics
  - [e] NAVEDTRA 14202, Operations Specialist 1 & C
  - [f] COMTHIRDFLT/COMSUBPAC TACNOTE ZZ 1010-1-94, Coordinated Submarine Manual
  - [g] NWP 3-20.6 (Series), Ship's Class Tactical Manual
- 

### 126.1 Define the following:

- a. Swap [ref. a, ch. 10]
- b. SAU/SAC [ref. a, ch. 10]
- c. Cavitation speed [ref. b, Glossary]
- d. Maximum sonar speed [ref. b, Glossary]
- e. Optimum tow speed [ref. c, ch. 4]
- f. Optimum sonar speed [ref. b, Glossary]
- g. Datum [ref. b, Glossary]
- h. Datum error [ref. b, Glossary]
- i. FOC [ref. a, Glossary]
- j. TDA [ref. b, Glossary]
- k. TDZ [ref. b, Glossary]
- l. Limiting lines-of-approach [ref. a, Glossary]
- m. Urgent attack [ref. b, Glossary]
- n. Deliberate attack [ref. b, Glossary]
- o. Ambient noise limited speed [ref. c, ch. 4]
- p. Breakpoint speed [ref. d, app. A]
- q. Missile danger area [ref. b, Glossary]

---

(Signature and Date)

## 126 ANTISUBMARINE WARFARE (ASW) TACTICS FUNDAMENTALS (CONT'D)

126.2 Define the following classification terms: [ref. c, ch. 4]

- a. CERTSUB
- b. PROBSUB
- c. POSSUB
- d. NONSUB
- e. Confidence levels

---

(Signature and Date)

.3 Discuss the following tactical countermeasures used during ASW operations:

- a. Random patrolling [ref. a, ch. 9]
- b. Turn count masking/random speed changes [ref. c, ch. 4]
- c. Evasive steering/zigzag plans (ATP 3) [ref. b, ch. 2]
- d. Torpedo evasion [ref. b, ch. 2]
- e. Use of unusual topside configurations [ref. c, ch. 4]
- f. Broad and narrow weaves [ref. b, ch. 2]

---

(Signature and Date)

.4 Discuss the following material countermeasures and how they are used during ASW operations:

- a. Towed decoys [ref. c, ch. 4]
- b. Noise reduction/quiet ship conditions [ref. d, ch. 2]
- c. Degaussing [ref. a, ch. 4]
- d. Prairie and masker [ref. d, ch. 2]
- e. ADC [ref. g]
- f. LEADS [ref. g]

---

(Signature and Date)

.5 Discuss the following types of ASW screens and how they are used during ASW operations: [ref. b, ch. 3]

- a. Sector
- b. Skeleton
- c. Helo windline
- d. Departure and entry

---

(Signature and Date)

## **126 ANTISUBMARINE WARFARE (ASW) TACTICS FUNDAMENTALS (CONT'D)**

- 126.6 Discuss the sound propagation considerations involved in an open ocean search for submarines, including search procedures for passive and active sonar systems, to include time-sharing patterns. [ref. a, ch. 2]

---

(Signature and Date)

- .7 Discuss the passive or passive-active decision and the factors involved. [ref. c, app. A]

---

(Signature and Date)

- .8 Discuss the role of passive ships in ASW screen. [ref. b, ch. 3]

---

(Signature and Date)

- .9 Discuss the method of employment of attack and assist units used during ASW operations using the 14 AS cordon search and attack plan. [ref. a, ch. 4]

---

(Signature and Date)

- .10 Discuss under what conditions urgent and deliberate ASW attacks should be conducted. [ref. a, ch. 4]

---

(Signature and Date)

- .11 Discuss the following tactical and procedural instructions used for ships/SAUs operating-against-enemy submarines:

- a. Estimating datum [ref. e, ch. 6]
- b. Plans red and black [ref. b, ch. 9]
- c. Approach tactics [ref. b, ch. 9]
- d. Construction of farthest on circles [ref. e, ch. 6]
- e. Construction of torpedo danger areas [ref. e, ch. 6]
- f. Attack-and-assist ship responsibilities [ref. b, ch. 9]

---

(Signature and Date)

- .12 Discuss TMA and its application to passive sonar. [ref. d, ch. 8]

---

(Signature and Date)

## **126      ANTISUBMARINE WARFARE (ASW) TACTICS FUNDAMENTALS (CONT'D)**

126.13      Describe the sequence of events in an ASW DTE evolution. [ref. d, ch. 9]

---

(Signature and Date)

.14      Briefly discuss the employment of SSNs in area operations. [ref. a, ch. 9]

---

(Signature and Date)

.15      Discuss the concept of ASW defense in depth. [ref. c, ch. 6]

---

(Signature and Date)

.16      Discuss the tactical considerations of and reasons for WSM and PMI. [ref. f, ch. 6]

---

(Signature and Date)

.17      Explain the difference between direct and associated support. [ref. f, ch. 1]

---

(Signature and Date)

.18      Define the following terms: [ref. f, chs. 1, 6, Annex 1 thru app. F]

- a.      SUBOPAUTH
- b.      Shore targeting terminal
- c.      JTAA
- d.      SPA
- e.      SAA
- f.      ASWFA
- g.      SOCA
- h.      Stovepipe
- i.      TAPA
- j.      SGSA
- k.      NOTACK
- l.      Dog box

---

(Signature and Date)

## 127 ELECTRONIC WARFARE (EW) FUNDAMENTALS

### References:

- [a] NWP 3-13.1.13, Electronic Warfare Coordination
  - [b] NAVEDTRA 14095, Electronics Warfare Technician 1 & C
  - [c] CJCS MOP 6, Chairman of the Joint Chiefs of Staff Memorandum of Policy, No. 6
- 

127.1 State the objectives of EW. [ref. a, ch. 1]

---

(Signature and Date)

.2 Define the following:

- a. EW support [ref. a, ch. 1; ref. c]
- b. EA [ref. a, ch. 1; ref. c]
- c. EP [ref. a, ch. 1]
- d. EMCON [ref. a, ch. 1; ref. c]
- e. SIGINT [ref. a, ch. 1]
- f. C3CM [ref. a, ch. 1]
- g. Deception [ref. a, ch. 1]
- h. MIJI [ref. b, ch. 7]

---

(Signature and Date)

.3 Discuss radio frequency bands, including the method of classification of emitters by band type. [ref. a, app. H]

---

(Signature and Date)

.4 Discuss the responsibilities of the following in EW: [ref. a, ch. 2]

- a. OTC/IWC
- b. SEWC
- c. EW control ship

---

(Signature and Date)

## **127 ELECTRONIC WARFARE (EW) FUNDAMENTALS (CONT'D)**

127.5 Discuss the functions of shipboard EW watchstanders. [ref. a, ch. 8]

---

(Signature and Date)

.6 Describe the circumstances under which EMCON may be broken. [ref. a, ch. 9]

---

(Signature and Date)

.7 Discuss the shipboard EMCON bill and how it is used in setting and maintaining a prescribed EMCON condition. [ref. a, chs. 8, 9]

---

(Signature and Date)

.8 Discuss EMCON planning factors to include the following: [ref. a, ch. 9]

- a. Mission
- b. Threat
- c. Avoiding detection
- d. Avoid targeting

---

(Signature and Date)

## 128 ELECTRONIC SUPPORT (ES) FUNDAMENTALS

### References:

- [a] NWP 3-13.1.13, Electronic Warfare Coordination
  - [b] NAVEDTRA 14096, Electronics Warfare Technician 3 & 2
  - [c] CJCS MOP 6, Chairman of the Joint Chiefs of Staff Memorandum of Policy, No. 6
  - [d] TACMEMO 3-15.2-01, Surface Ship Electronic Attack
- 

128.1 Discuss the objectives of ES. [ref. a, ch. 1; ref. c]

\_\_\_\_\_  
(Signature and Date)

.2 Discuss the phases of ES and the primary method of carrying out these phases.  
[ref. a, ch. 6, ref. c]

\_\_\_\_\_  
(Signature and Date)

.3 Define the following: [ref. a]

- a. Intercept assignments [ch. 6]
- b. Guardship responsibilities [ch. 6]
- c. HULTEC [ch. 6]
- d. Racket report [ch. 4]
- e. Emergency racket report [ch. 4]
- f. Vampire report [ch. 4]
- g. Rent report [ch. 4]
- h. Trout report [ch. 4]
- i. Duffer [ch. 4]
- j. Volcano report [ch. 4]

\_\_\_\_\_  
(Signature and Date)

.4 Discuss the following radar characteristics used by the ES Operator to determine probable function, type of radar, and associated platform:

- a. Frequency [ref. a, app. H]
- b. Frequency agility [ref. b, ch. 1]
- c. PRF [ref. a, app. H]
- d. Pulse width [ref. a, app. H]
- e. Scan type/scan rate [ref. a, app. H]
- f. Modulation [ref. a, app. H]



## **128 ELECTRONIC SUPPORT (ES) FUNDAMENTALS (CONT'D)**

- 128.4 g. Doppler [ref. b, app. I]  
h. WARM [ref. d]

---

(Signature and Date)

- .5 Discuss the following search and fire control radar scan techniques and their significance in ES intercept search as related to own ship and Navy aircraft:

- a. Circular [ref. a, app. H; ref. b, ch. 3]
- b. Sector [ref. a, app. H; ref. b, ch. 3]
- c. Conical [ref. a, app. H; ref. b, ch. 3]
- d. Helical [ref. a, app. H]
- e. Palmer [ref. a, app. H]
- f. Spiral [ref. a, app. H]
- g. COSRO [ref. b, ch. 3]
- h. Raster [ref. a, app. H]
- i. TWS [ref. b, ch. 3]
- j. TWSRO [ref. b, ch. 3]
- k. Monopulse [ref. b, ch. 3]
- l. Phased array [ref. c, sec. I]

---

(Signature and Date)

## 129 ELECTRONIC ATTACK (EA) FUNDAMENTALS

### References:

- [a] NWP 3-13.1.13, Electronic Warfare Coordination
  - [b] NAVEDTRA 14095, Electronics Warfare Technician 1 & C
  - [c] NAVEDTRA 14096, Electronics Warfare Technician 3 & 2
  - [d] NWP 3-58.1, Navy Operational Deception and Counter-Deception
  - [e] CJCS MOP 6, Chairman of the Joint Chiefs of Staff Memorandum of Policy, No. 6
  - [f] TACMEMO 3-51.2-01, Surface Ship Electronic Attack
- 

129.1 Discuss the objectives of EA:

- a. Jamming [ref. a, ch. 5; ref. e]
- b. Deception [ref. a, ch. 6; ref. e]
- c. Burn through range [ref. c, app. I; ref. e]

---

(Signature and Date)

.2 Discuss the following EA devices:

- a. Electronic noise jammers [ref. a, ch. 5; ref. e]
- b. Mechanical jammers [ref. a, ch. 5; ref. e]
- c. Electronic deception repeaters [ref. a, ch. 6, app. E; ref. e]
- d. Mechanical decoys [ref. a, ch. 6; ref. e]
  - 1. Radar [ref. a, ch. 6; ref. e]
  - 2. I/R [ref. a, ch. 6; ref. e]

---

(Signature and Date)

.3 Discuss shipboard procedures for launching EW expendables. [ref. a, ch. 6; ref. f]

---

(Signature and Date)

## 129 ELECTRONIC ATTACK (EA) FUNDAMENTALS (CONT'D)

129.4 Discuss the use of EW expendables in the following modes: [ref. a, ch. 6; ref. f]

- a. CTTG
- b. Distraction
- c. Seduction

---

(Signature and Date)

.5 Discuss the techniques of C3CM. [ref. a, ch. 5]

---

(Signature and Date)

.6 Discuss the following EA techniques:

- a. Spot jamming [ref. b, ch. 7]
- b. Sweep jamming [ref. b, ch. 7]
- c. Frequency search and lock jamming [ref. b, ch. 7]
- d. Barrage jamming [ref. b, ch. 7]
- e. On-target (self-screening) jamming [ref. b, ch. 7]
- f. Off-target (standoff) jamming [ref. b, ch. 7]
- g. Inverse gain [ref. c, ch. 5]
- h. Swept audio [ref. c, ch. 5]
- i. Swept square wave [ref. c, ch. 5]
- j. Range gate pulloff [ref. c, ch. 5]
- k. False target generator [ref. c, ch. 5]
- l. CTTG [ref. f]
- m. Distraction [ref. f]
- n. Seduction [ref. f]

---

(Signature and Date)

.7 Discuss the role of the Fleet Information Warfare Center. [ref. a, ch. 3]

---

(Signature and Date)

.8 Discuss the tactical use of AN/SLQ-49 (rubber ducks). [ref. d, ch. 6]

---

(Signature and Date)

## **129 ELECTRONIC ATTACK (EA) FUNDAMENTALS (CONT'D)**

129.9 Explain the difference between direct and associated support. [ref. f, ch. 1]

---

(Signature and Date)

.10 Define the following terms: [ref. f, chs. 1, 6, Annex 1 thru app. F]

- a. SUBOPAUTH
- b. Shore targeting terminal
- c. JTAA
- d. SPA
- e. SAA
- f. USWFA

---

(Signature and Date)

**130 ELECTRONIC PROTECTION (EP) FUNDAMENTALS**

## References:

- [a] NAVEDTRA 14096, Electronics Warfare Technician 3 & 2
  - [b] NWP 3-13.1.13, Electronic Warfare Coordination
  - [c] TACMEMO 3-51.2-01, Surface Ship Electronic Attack
- 

130.1 Discuss the following EP techniques:

- a. EMCON [ref. b, ch. 1; ref. c]
- b. Operator training/techniques [ref. a, ch.1; ref. c]
- c. System techniques [ref. a, ch.1; ref. c]
- d. Frequency diversity and agility [ref. a, ch.1; ref. c]

---

(Signature and Date)

.2 Discuss EP in terms of the following: [ref. a, ch.1; ref. c]

- a. Antijam measures
- b. Antideception measures
- c. Procedures for radio operators

---

(Signature and Date)

.3 Discuss the three categories of EP antijam circuits. [ref. a, ch.1; ref. c]

---

(Signature and Date)

.4 Discuss the limitations in the use of EP techniques. [ref. a, ch.1; ref. c]

---

(Signature and Date)

.5 Discuss the importance of operator training in the use of EP techniques.  
[ref. a, ch.1; ref. c]

---

(Signature and Date)

## 131 MILITARY DECEPTION (MILDEC) FUNDAMENTALS

### References:

- [a] NWP 3-58.1, Navy Operational Deception and Counter-Deception  
 [b] CJCS MOP 30, Chairman of the Joint Chiefs of Staff Memorandum of Policy, No. 30
- 

131.1 Discuss the purpose of MILDEC. [ref. a, ch. 1; ref. b]

\_\_\_\_\_  
 (Signature and Date)

.2 Discuss the role of the FIWC in MILDEC. [ref. a, ch. 1; ref. b]

\_\_\_\_\_  
 (Signature and Date)

.3 Discuss the following deception methods: [ref. a, ch. 3]

- a. Physical
- b. Technical
- c. Administrative

\_\_\_\_\_  
 (Signature and Date)

.4 Briefly discuss the MILDEC equipment installable aboard ship, their capabilities, and ship support requirements. [ref. a, app. B; ref. b]

\_\_\_\_\_  
 (Signature and Date)

.5 Discuss counterdeception. [ref. a, ch. 1]

\_\_\_\_\_  
 (Signature and Date)

## 132 MINE WARFARE (MIW) ORGANIZATION FUNDAMENTALS

### References:

- [a] ATP 6(B), Mine Warfare Principles, Vol. I
  - [b] NWP 3-15.5, Organic Mine Countermeasures (OMCM)
  - [c] MIW CONOPS
  - [d] Ship's Combat Systems Doctrine (Class Specific)
  - [e] NWP 3-15.2, Mine Countermeasures Operations
- 

132.1 Discuss the MIW Family Tree. [ref. a, ch. 1]

\_\_\_\_\_  
(Signature and Date)

.2 Discuss the MCM Triad. [ref. e, ch. 1]

\_\_\_\_\_  
(Signature and Date)

.3 Discuss the responsibilities of the following commanders in the MIW organization:

- a. MIWC [ref. b, ch. 3]
- b. MCMC [ref. c]
- c. Mine Counter Measure Squadron Commander [ref. b, ch. 3]

\_\_\_\_\_  
(Signature and Date)

.4 Discuss the following MIW control stations, their functions, and manning during MIW operations: [refs. c, d]

- a. MCS
- b. MEDAL/MCM organic system
- c. Post mission analysis center

\_\_\_\_\_  
(Signature and Date)

## **132 MINE WARFARE (MIW) ORGANIZATION FUNDAMENTALS (CONT'D)**

132.5 Discuss the responsibilities of the following personnel (as applicable) during MIW operations: [ref. d]

- a. TAO
- b. Mine Countermeasure TAO/Evaluator
- c. OOD
- d. JOOD
- e. Sonar Supervisor
- f. MNV Pilot
- g. RMS Supervisor
- h. MEDAL Operator
- i. DRT/DDRT Plotter
- j. Quartermaster
- k. Lookouts

---

(Signature and Date)



## 133 MINING FUNDAMENTALS

### References:

- [a] ATP 6(B), Mine Warfare Principles, Vol. I
  - [b] NWP 27-4, Mining Operations
  - [c] NWP 3-10 (Rev. A), Naval Coastal Defense Doctrine
  - [d] NWP 3-15.42 (Rev. B), Minefield Planning
- 

133.1 Discuss the use and classification of mines in coastal, inland, and deep water areas:

- a. Position underwater [ref. b, ch. 1]
  - 1. Moored
  - 2. Ground
  - 3. Drifting
- b. Method of actuation [ref. b, ch. 1]
  - 1. Contact
  - 2. Influence
  - 3. Controlled
- c. Method of laying [ref. a, ch. 5]
  - 1. Aircraft
  - 2. Surface ship
  - 3. Submarine

---

(Signature and Date)

.2 Discuss the types of mining operations and mine fields in the following terms: [ref. a]

- a. Physical position and purpose of the field [ch. 1]
  - 1. Defensive
  - 2. Offensive
  - 3. Protective
- b. Relation to other military operations [ch. 1]
  - 1. Tactical
  - 2. Strategic
- c. Special purpose [ch. 5]
  - 1. Closure
  - 2. Dummy
  - 3. Nuisance
  - 4. Antisubmarine

---

(Signature and Date)

## 133 MINING FUNDAMENTALS (CONT'D)

133.3 Discuss the actuation principles of the following types of influence mine mechanisms: [ref. a, ch. 2]

- a. Magnetic
- b. Acoustic
- c. Pressure
- d. Seismic
- e. Combination
- f. UEP

---

(Signature and Date)

.4 Discuss how the following relates to target selection: [ref. a, ch. 2]

- a. Firing mechanism sensitivities
- b. Arming delays
- c. Ship counters

---

(Signature and Date)

.5 Discuss the following mine laying patterns: [ref. a, Annex 1A]

- a. Single mine line
  - 1. Curved
  - 2. Angular
- b. Multiple mine lines
  - 1. Barrage
  - 2. Comb

---

(Signature and Date)

.6 Discuss the impact of the following self-protection systems/measures on mine performance: [ref. a, ch. 4]

- a. Magnetic silencing
  - 1. Degaussing
  - 2. Deperming
  - 3. Flash deperming
- b. Acoustic silencing
  - 1. Prairie
  - 2. Masker
  - 3. HUB
  - 4. Quiet ship bill

## **133 MINING FUNDAMENTALS (CONT'D)**

- 133.6      c.      Speed  
             d.      Electronic countermeasures

---

(Signature and Date)

- .7      Discuss the capabilities, uses, and laying platforms of U.S. mines. [ref. b, app. A]

---

(Signature and Date)

- .8      Discuss the impact of environmental conditions on mining. [ref. d, ch. 2]

---

(Signature and Date)

- .9      Discuss the distinction between mining and mine countermeasures. [ref. c, ch. 6]

---

(Signature and Date)

- .10      Discuss the UMPM Program. [ref. d, app. C]

---

(Signature and Date)

## 134 MINE COUNTERMEASURE FUNDAMENTALS

### References:

- [a] NTTP 3-15.21, Surface Mine Countermeasures Operations (SMCM)
  - [b] ATP 6(B), Mine Warfare Principles, Vol. I
  - [c] NWP 3-15.41, Mine Countermeasures Planning and Procedures (General Instructions)
  - [d] NWP 3-15.2, Mine Countermeasures Operations
  - [e] ATP 1(C), Allied Maritime Tactical Signal and Maneuvering Book, Vol. II
  - [f] ATP 6(C), Mine Countermeasures Operations Planning and Evaluation, Vol. II
  - [g] ATP 24(C), Mine Countermeasures Tactics and Execution, Vol. I
  - [h] NWP 3-15, Mine Warfare
  - [i] SAIC MEDAL Operators Handbook
  - [j] MIW CONOPS
  - [k] COMINWARCOM TACMEMO 3-15.11-02, Tactical Applications of Bottom Mapping
- 

134.1 Discuss the following methods of mine countermeasures and their associated platforms:

- a. Mine hunting [ref. a, ch. 1]
  - 1. Mine watching [ref. a, ch. 1]
  - 2. Mine detection [ref. a, ch. 10]
  - 3. Mine neutralization [ref. a, ch. 11]
- b. Mine sweeping [ref. a, ch. 3]
  - 1. Mechanical [ref. a, ch. 12]
  - 2. Magnetic [ref. a, ch. 13]
  - 3. Acoustic [ref. a, ch. 13]
  - 4. Pressure [ref. a, ch. 1]
  - 5. Combination [ref. a, ch. 13]
- c. Channel conditioning/route survey [ref. a, chs. 10, 12]
- d. Change-detect [ref. k, ch. 4]
- e. Precursor operations [ref. f, ch 3]

---

(Signature and Date)

.2 Discuss the following types of minefield navigation methods and the equipment associated with each: [ref. a, ch. 4]

- a. GPS
- b. Precise navigation buoys

---

(Signature and Date)

## 134 MINE COUNTERMEASURE FUNDAMENTALS (CONT'D)

134.3 Discuss the role of the following MCM assets in mine countermeasures.  
[ref. a, ch. 6]

- a. EOD teams
- b. Naval special clearance team one
- c. MHC-51 Osprey class
- d. MCM-1 Avenger class
- e. MH-53 Sea Dragon
- f. MH-60 Night Hawk
- g. RMS
- h. LMRS

---

(Signature and Date)

.4 Discuss the impact of environmental conditions on mine countermeasures:  
[ref. c, ch. 11]

- a. Water depth
- b. Bottom topography
- c. Bottom composition
- d. Magnetic sweeping environment
- e. Acoustic sweeping environment
- f. Tides
- g. Tidal streams and currents
- h. Wind
- i. Operational minehunting clutter
- j. MILEC
- k. MILCO
- l. NOMBO
- m. Underwater visibility

---

(Signature and Date)

.5 Discuss the two components of bottom type: [ref. g, ch. 6]

- a. Bottom category
- b. Clutter category
  - 1. ATP definition
  - 2. NWP definition

---

(Signature and Date)

## **134 MINE COUNTERMEASURE FUNDAMENTALS (CONT'D)**

134.6 Discuss the principle of operation of mine counter-countermeasures. [ref. c, ch. 2]

---

(Signature and Date)

.7 Discuss self-protective measures for ships against the following mine types:  
[ref. b, ch. 4]

- a. Moored contact mines
- b. Moored influence mines
- c. Ground mines
- d. Drifting mines

---

(Signature and Date)

.8 Define the following terms:

- a. Traffic risk [ref. f, ch. 5]
- b. MCMV risk [ref. f, ch. 5]
- c. Percentage clearance (P) [ref. c, ch. 1]
- d. CL [ref. c, ch. 1]
- e. MDA [ref. f, ch. 1]
- f. MTA [ref. j]
- g. Integrated minehunting operations [ref. d, ch. 2]
- h. Task cycle [ref. f, ch. 3]

---

(Signature and Date)

.9 Discuss the different types of MCM objectives: [ref. c, ch. 7]

- a. Reconnaissance objective
- b. Exploratory objective
- c. Clearance objective
- d. Attrition objective
- e. Breakthrough objective

---

(Signature and Date)

## 134 MINE COUNTERMEASURE FUNDAMENTALS (CONT'D)

134.10 Discuss the following MCM planning parameters:

- a. Aggregate actuation/sweep path/detection width (W) [ref. f, ch. 3]
- b. Characteristic actuation/sweep path/detection probability (B)  
[ref. c, ch. 1; ref. f, ch. 3]
- c. Characteristic actuation/sweep path/detection width (A)  
[ref. c, ch. 1; ref. f, ch. 3]
- d. Fraction of undetectable mines [ref. c, ch. 3]

---

(Signature and Date)

.11 Discuss the following MCM tactical definitions: [ref. g]

- a. Track spacing (D) [ch. 3]
- b. Number of runs per track (J) [chs. 10, 13]
- c. Channel width (C) [chs. 10, 13]

---

(Signature and Date)

.12 Discuss the following minehunting terminology: [ref. f, ch. 7]

- a. Detect
- b. Classify
- c. Minelike
- d. Nonminelike
- e. Identify
- f. Mine
- g. Nonmine
- h. Locate
- i. Plot
- j. Mark
- k. Dispose
- l. Countermine
- m. Neutralize
- n. Render safe
- o. Recover
- p. Remove

---

(Signature and Date)

## **134 MINE COUNTERMEASURE FUNDAMENTALS (CONT'D)**

134.13 Discuss the purpose of the following MCM reports: [ref. e, ch. 26; ref. f, ch. 12]

- a. MW 124
- b. MW 125
- c. MW 127
- d. MW 128
- e. MW 129
- f. MW 130

---

(Signature and Date)

.14 Discuss force protection for MCM assets conducting MCM operations. [ref. d, ch. 7]

---

(Signature and Date)

.15 Discuss the development of geometry of operational areas in consideration of MCM operations. [ref. h, ch. 3]

---

(Signature and Date)

.16 Discuss MEDAL. [ref. i]

---

(Signature and Date)

.17 Discuss the advantages/disadvantages of surface mine countermeasures platforms and airborne mine countermeasures platforms. [ref. b, ch. 3]

---

(Signature and Date)

.18 Discuss the integration of airborne and surface mine countermeasures in a combined hunting/sweeping operation. [ref. c, ch. 3]

---

(Signature and Date)



## 135 AMPHIBIOUS TASK FORCE/TASK GROUP ORGANIZATION FUNDAMENTALS

### References:

- [a] NWP 3-02.1, Ship-to-Shore Movement
  - [b] Joint Pub 3-02, Joint Doctrine for Amphibious Operations
  - [c] NWP 22-5 (Rev. C), The Naval Beach Group
  - [d] NWP 3-09.11M, Supporting Arms in Amphibious Operations
  - [e] Joint Pub 3-02.1T, Joint Doctrine for Landing Force Operations
  - [f] Fleet ESG CONOP
- 

- 135.1 Discuss the command relationships between the CATF and the CLF, during the planning and execution stages of amphibious operations. [ref. a, ch. 2]

\_\_\_\_\_  
(Signature and Date)

- .2 Discuss the responsibilities and composition of the following amphibious task organization elements:

- a. CATF [ref. a, ch. 2]
- b. ATF [ref. a, ch. 2]
- c. CLF [ref. a, ch. 2]
- d. Landing force [ref. a, ch. 2]
- e. Transport group [ref. a, ch. 2]
- f. Tactical air control group [ref. b, ch. 2]
- g. MIW group [ref. b, ch. 2]
- h. Naval beach group [ref. a, ch. 1]
- i. Inshore undersea warfare group [ref. b, ch. 2]
- j. Control group [ref. b, ch. 2]
- k. Fire support group [ref. b, ch. 2]
- l. Support carrier group [ref. b, ch. 2]
- m. Screening group [ref. b, ch. 2]
- n. Tactical deception group [ref. b, ch. 2]
- o. MEF [ref. a, ch. 2]
- p. MEB [ref. c, ch. 4]
- q. MEU [ref. a, ch. 2]
- r. RLT [ref. a, ch. 2]
- s. BLT [ref. a, ch. 2]
- t. ACE [ref. a, ch. 2]
- u. FSSG [ref. c, ch. 1]
- v. CSSE [ref. a, ch. 2]
- w. MSSG [ref. a, ch. 2]
- x. ANGLICO [ref. d, ch. 1]

## **135 AMPHIBIOUS TASK FORCE (T/F)/TASK GROUP (T/G) ORGANIZATION FUNDAMENTALS (CONT'D)**

- 135.3 y. MAGTF [ref. b, ch. 2]  
z. ESG [ref. f]

---

(Signature and Date)

- .4 Discuss the responsibilities and composition of the following elements of the control organization for ship-to-shore movement:

- a. LCS [ref. a, ch. 4]
- b. PCS [ref. a, ch. 4]
- c. SCS [ref. a, ch. 4]
- e. BGC [ref. a, ch. 4]
- f. ABGC [ref. a, ch. 4]
- g. BWC [ref. a, ch. 4]
- h. WGO [ref. a, ch. 4]
- i. TACC [ref. a, ch. 5]
- j. SACC [ref. b, ch. 16]
- k. TACLOG group [ref. a, ch. 5]
- l. HDC [ref. a, ch. 5]
- m. HLSC [ref. a, ch. 5]
- n. CCO [ref. e, ch. 4]

---

(Signature and Date)

## 136 AMPHIBIOUS WARFARE OPERATIONS FUNDAMENTALS

### References:

- [a] Joint Pub 3-02, Joint Doctrine for Amphibious Operations
  - [b] NWP 3-02.1, Ship-to-Shore Movement
  - [c] NWP 22-4 (Rev. B), Underwater Demolition Teams in Amphibious Operations
  - [d] ATP 8(A), Doctrine for Amphibious Operations
- 

136.1 Describe the sequence of events for the following phases of assault operations:  
[ref. a]

- a. Embarkation [ch. 11]
- b. Movement to objective area [ch. 14]
- c. Planning [ch. 3]
- d. Rehearsal [ch. 12]
- e. Preassault/assault operations [chs. 15, 16]

---

(Signature and Date)

.2 Discuss the missions of amphibious warfare and the sequence of events of each of the following types of amphibious operations: [ref. a, ch. 16]

- a. Amphibious demonstration
- b. Amphibious withdrawal
- c. Amphibious raid

---

(Signature and Date)

.3 Discuss the following terms associated with ship-to-shore movement:

- a. D-day [ref. b, ch. 4]
- b. L-hour [ref. b, ch. 4]
- c. H-hour [ref. b, ch. 4]
- d. LOD [ref. b, ch. 4]
- e. Hydrographic reconnaissance [ref. c, ch. 2]
- f. SUROB report [ref. c, ch. 4]
- g. Rendezvous area [ref. b, ch. 4]
- h. Boat lanes [ref. b, ch. 4]
- i. Boat wave [ref. b, ch. 4]
- j. Boat group [ref. b, ch. 4]
- k. CCA [ref. b, ch. 4]

## 136 AMPHIBIOUS WARFARE OPERATIONS FUNDAMENTALS (CONT'D)

- 136.3 l. CCP [ref. b, ch. 4]  
m. Launch corridor [ref. b, ch. 4]

---

(Signature and Date)

- .4 Discuss the following terms associated with amphibious operations:

- a. AOA [ref. d, app. 2A]
- b. Landing area [ref. b, ch. 3]
- c. Landing beach [ref. a, ch. 3]
- d. Beachhead [ref. a, ch. 3]
- e. Inner/outer transport area [ref. b, ch. 3]
- f. FSA [ref. b, ch. 3]
- g. LZ [ref. d, ch. 4]
- h. CLZ [ref. a, ch. 4]
- i. BLS [ref. d, ch. 4]
- j. Inner/outer SEA [ref. b, ch. 3]

---

(Signature and Date)

- .5 Describe the protective measures that must be taken in the AOA, including the sea echelon plan, to minimize disruptions and damage to the amphibious forces. [ref. b, ch. 3]

---

(Signature and Date)

- .6 Describe the sequence of operations from arrival in the AOA on D-day to the landing of the landing force. [ref. a, ch. 15]

---

(Signature and Date)

- .7 Discuss the role of the EOD and SEAL teams in amphibious operations. [ref. c, ch. 1]

---

(Signature and Date)

- .8 Discuss the tactic of vertical envelopment, types of aircraft used, and how they are employed in amphibious warfare. [ref. b, ch. 5]

---

(Signature and Date)

## **136      AMPHIBIOUS WARFARE OPERATIONS FUNDAMENTALS (CONT'D)**

136.9      Discuss the missions and functions of the supporting CVBG aircraft and the organic ATF aircraft. [ref. d, ch. 2]

---

(Signature and Date)

.10      Discuss the difference between combat and administrative loading. [ref. d, ch. 12]

---

(Signature and Date)

## 137 AMPHIBIOUS LANDING CRAFT FUNDAMENTALS

### References:

- [a] ATP 36(A), Amphibious Operations Ship-to-Shore Movement
  - [b] Jane's Fighting Ships, 1995-96 (98<sup>th</sup> Edition)
  - [c] NWP 22-5 (Rev. C), The Naval Beach Group
  - [d] NWP 3-02.1, Ship-to-Shore Movement
  - [e] NWP 65-0-1, Characteristics and Capabilities of U.S. Navy Combatant Ships
- 

137.1 For the amphibious ships listed below, discuss their mission, basic characteristics, and responsibilities during the assault phase of amphibious operations:  
[ref. a, ch. 1; ref. b]

- a. LCC
- b. LHA
- c. LHD
- d. LPD-4/LPD-17
- f. LSD

---

(Signature and Date)

.2 State the characteristics (propulsion, maximum speed, range, and amphibious capability), mission, and capacity to carry troops and/or equipment for the landing craft listed below:

- a. RHIBs [ref. d, ch. 1]
- b. LCM-8 [ref. c, app. A]
- c. LCU [ref. c, app. A]
- d. LCPL [ref. c, app. A]
- e. AAVP-7 [ref. d, ch. 1]
- f. AAVC-7 [ref. d, ch. 1]
- g. AAVR-7 [ref. d, ch. 1]
- h. LARC [ref. c, app. A]
- i. LCAC [ref. c, app. A]
- j. CRRC [ref. e]

---

(Signature and Date)

**138 NAVAL SURFACE FIRE SUPPORT (NSFS) FUNDAMENTALS**

## References:

- [a] ATP 4(E), Allied Naval Gunfire Support
  - [b] NWP 3-09.11M, Supporting Arms in Amphibious Operations
  - [c] NAVEDTRA 14203, Operations Specialist 2
  - [d] NAVEDTRA 14324, Gunner's Mate
- 

138.1 Discuss and classify NSFS missions in terms of the following: [ref. b, ch. 2]

- a. Effect
- b. Tactical use
- c. Degree of prearrangement
- d. Type-of-fire
- e. Technique of delivery

---

(Signature and Date)

.2 Discuss the purpose of the UTM grid system and its application to NSFS.  
[ref. c, ch. 7]

---

(Signature and Date)

.3 Discuss the duties and responsibilities of airborne or shore-based spotters.  
[ref. b, ch. 1]

---

(Signature and Date)

.4 Discuss the communication between the spotter and the supporting ship.  
[ref. a, ch. 3]

---

(Signature and Date)

## **138      NAVAL SURFACE FIRE SUPPORT (NSFS) FUNDAMENTALS (CONT'D)**

138.5      Discuss the advantages and disadvantages of the following guns and gunfire control systems in NSFS: [ref. b, app. B]

- a.      5"/54 MK 45
- b.      5"/62 MK 45
- c.      76 mm/62 MK 75
- d.      MK 86 FCS
- e.      MK 92 FCS

---

(Signature and Date)

.6      Define the following terms: [ref. d, ch. 11]

- a.      Slow fire
- b.      Rapid fire
- c.      Salvo
- d.      Rapid salvo fire
- e.      Rapid continuous fire
- f.      MPI
- g.      Pattern
- h.      Dispersion
- i.      Apparent mean dispersion
- j.      Fire mean dispersion
- k.      Hitting space
- l.      Danger space
- m.      Straddle
- n.      Error of MPI

---

(Signature and Date)

.7      Discuss the following spotting techniques: [ref. a, ch. 2]

- a.      Deviation
- b.      Range
- c.      Height of burst

---

(Signature and Date)

.8      Describe the use of the grid spot converter. [ref. c, ch. 7]

---

(Signature and Date)



## 139 NAVAL THREAT FUNDAMENTALS

### References:

- [a] NWP 1-10.11, Tactical Action Officer Handbook
  - [b] NWP 3-56A, Composite Warfare Commander's Manual
  - [c] NTTP 3-07.2.1, Antiterrorism/Force Protection
- 

139.1 Discuss the general threat associated with the following platform types to include missions and weapons capabilities: [ref. b, ch. 12]

- a. Diesel and nuclear submarines
- b. Naval surface platforms
- c. Sea and land based aircraft
- d. Fast patrol boats

---

(Signature and Date)

.2 Discuss the threat associated with platforms used by the following countries: [ref. a]

- a. Russia
- b. People's Republic of China
- c. North Korea
- d. Libya
- e. Iran
- f. Cuba
- g. India
- h. Vietnam
- i. Other countries (as applicable)

---

(Signature and Date)

.3 Discuss the intelligence cycle and its application to determining a threat in a warfare environment. [ref. b, ch. 12]

---

(Signature and Date)

.4 Discuss the threat assessment associated with antiterrorism/force protection measures. [ref. c, ch. 3]

---

(Signature and Date)

## 140 BRIDGE EQUIPMENT FUNDAMENTALS

### References:

- [a] Ship's Information Book (SIB)
  - [b] NTTP 3-20.31.79, Practical Damage Control (NSTM Ch. 079, Vol. 2, S9086-CN-STM-020/CH-079V2R2)
  - [c] NAVEDTRA 14338, Quartermaster
  - [d] NAVEDTRA 14067, Seaman
  - [e] Manufacturer's Technical Manual
- 

140.1 Discuss the purpose of the following bridge equipment:

- a. Ship's alarms:
  - 1. General [ref. b, ch. 079-37.1.8]
  - 2. Chemical [ref. b, ch. 079-37.1.8]
  - 3. Collision [ref. b, ch. 079-37.1.8]
  - 4. Ship's control console [ref. a]
  - 5. Security (FZ alarms) [ref. d, ch. 6]
  - 6. Summary fire alarm [ref. a]
  - 7. Flight deck crash alarm [ref. a]
  - 8. Gyrocompass alarm [ref. a]
  - 9. Missile firing warning circuit alarm [ref. a]
  - 10. Ship's inertial navigation system alarm [ref. a]
  - 11. Weapons magazine alarms [ref. a]
  - 12. Steering casualty alarm [ref. a]
  - 13. Halon system alarm [ref. a]
  - 14. Cease fire alarm [ref. a]
- b. Magnetic compass [ref. c, ch. 2]
- c. Countermeasure washdown [ref. b, ch. 16]
- d. Barometer [ref. c, ch. 10]
- e. Psychrometer [ref. c, ch. 10]
- f. Anemometer/synchro repeater [ref. c, ch. 10]
- g. Radar repeater [ref. c, ch. 8]
- h. Gyrocompass repeaters [ref. c, ch. 11]
- i. Shaft rpm indicators [ref. a]
- j. Pitch indicators [ref. a]
- k. Radio circuits/remote units [ref. a]
- l. Radiac [ref. b, ch. 16]
- m. Status boards [ref. a]
- n. Ship's whistle and OOD remote switch [ref. a]
- o. Automatic whistle timer [ref. a]
- p. Navigational/task light panels [ref. c, ch. 11]
- q. Clinometer [ref. a]
- r. NTDS console [ref. c, ch. 11]
- s. Fathometer remote indicator [ref. a]

## **140 BRIDGE EQUIPMENT FUNDAMENTALS (CONT'D)**

- 140.1
- t. Degaussing remote indicator panel [ref. c, ch. 2]
  - u. Voice tubes and call buzzers [ref. b, ch. 21]
  - v. Emergency destruction equipment [ref. a]
  - w. CCTV [ref. a]
  - x. Electrical power distribution panels [ref. a]
  - y. Rudder angle indicator [ref. a]
  - z. Chaff launching panel/controls [ref. a]
  - aa. Electronic chart display [ref. a]
  - ab. Windshield wiper control panel [refs. a, e]
  - ac. IPDS/CAPDS [ref. e]

---

(Signature and Date)

## 141 UNDERWAY BRIDGE WATCH FUNDAMENTALS

### References:

- [a] OPNAVINST 3120.32C (Change 5), Standard Organization and Regulations Manual of the U.S. Navy (SORM)
  - [b] Watch Officer's Guide (Stavridis), 14<sup>th</sup> Edition
  - [c] NAVMED P-5010-010-LP-207-1300, Manual of Naval Preventive Medicine
  - [d] NWP-3-04.1M, Helicopter Operating Procedures for Air Capable Ships
- 

141.1 Describe the underway bridge watch organization. [ref. a, ch. 4]

---

(Signature and Date)

.2 Discuss the assigned duties, responsibilities, and relationships with the OOD, to include required reports and conduct of the watch in general, of the following personnel:

- a. Commanding Officer [ref. a, ch. 3]
- b. Executive Officer [ref. a, ch. 3]
- c. CDO [ref. a, ch. 4]
- d. Navigator [ref. a, ch. 3]
- e. TAO [ref. a, ch. 4]
- f. Embarked Commander [ref. a, ch. 3]
- g. JOOD/JOOW [ref. a, ch. 4]
- h. CICWO [ref. a, ch. 4]
- i. HCO [ref. a, ch. 3]
- j. Communications Watch Officer [ref. a, ch. 4]
- k. Senior Watch Officer [ref. a, ch. 3]
- l. Damage Control Watch Officer [ref. a, ch. 4]
- m. Boatswain's Mate of the Watch [ref. a, ch. 4]
- n. QMOW [ref. a, ch. 4]
- o. EOOW [ref. a, ch. 4]
- p. Helmsman [ref. a, ch. 4]
- q. Lee Helmsman [ref. a, ch. 4]
- r. Messenger [ref. a, ch. 4]
- s. Lookouts [ref. a, ch. 4]
- t. CSOOW [ref. a, ch. 4]
- u. Aftersteering Watch [ref. a, ch. 4]
- v. LSO [ref. d, ch. 1]

---

(Signature and Date)

## 141 UNDERWAY BRIDGE WATCH FUNDAMENTALS (CONT'D)

141.3 Discuss the following physical preparations required of bridge watchstanders prior to relieving the watch: [ref. b, ch. 5]

- a. Physical alertness
  - 1. Fatigue
  - 2. Illness/effects of prescribed drugs
  - 3. Night vision
- b. Required equipment
  - 1. Proper protective clothing
  - 2. Flashlight with red lens
  - 3. Binoculars
- c. Personal appearance

---

(Signature and Date)

.4 Discuss the information available on the bridge and in CIC that the oncoming OOD should be familiar with prior to relieving the watch to include: [ref. b, ch. 5]

- a. Tactical
- b. Navigational
- c. Internal shipboard
- d. Communications

---

(Signature and Date)

.5 Discuss the verbal exchange required as part of the OOD relieving process, including the following: [ref. a, ch. 4]

- a. Deck
- b. Conn

---

(Signature and Date)

## **141 UNDERWAY BRIDGE WATCH FUNDAMENTALS (CONT'D)**

141.6 Discuss the following as applied to proper watchstanding underway: [ref. b, ch. 1]

- a. Forehandedness
- b. Vigilance
- c. Judgment
- d. Leadership
- e. Technical knowledge
- f. Tactical knowledge

---

(Signature and Date)

.7 Discuss the need and format of deck log entries. [ref. a, ch. 4]

---

(Signature and Date)

.8 Discuss the contents of the following special evolutions checkoff lists:  
[ref. b, apps. D, E]

- a. Underway
- b. Entering port
- c. Low visibility
- d. Flight quarters
- e. CONREP
- f. Anchoring
- g. Swept channel
- h. Man overboard

---

(Signature and Date)

.9 Discuss environmental conditions and their effect on shipboard personnel.  
[ref. c, ch. 9, sec. VI]

---

(Signature and Date)

## **141 UNDERWAY BRIDGE WATCH FUNDAMENTALS (CONT'D)**

141.10 Discuss passing honors to include the following: [ref. b, ch. 12]

- a. When rendered
- b. Procedure
- c. Control/coordination
- d. Communication

---

(Signature and Date)

.11 Discuss dipping the ensign while underway. [ref. b, ch. 13]

---

(Signature and Date)

.12 Discuss the circumstances that result in an order to fly the ensign at half-mast.  
[ref. b, ch. 13]

---

(Signature and Date)

## 142 DECK SEAMANSHIP FUNDAMENTALS

### References:

- [a] NAVEDTRA 14067, Seaman
  - [b] NSTM S9086-UU-STM-010/CH-613, Wire Rope and Rigging, Sec. 2
  - [c] NAVEDTRA 14343, Boatswain's Mate
  - [d] Ship's Information Book (SIB)
  - [e] Seamanship Fundamentals for the Deck Officer (Dodge and Kyriss), 1981
- 

142.1 Define the following terms as applied to ground tackle: [ref. a, ch. 4]

- a. Bitts
- b. Chock
- c. Cleat
- d. Bull nose
- e. Hawse pipe
- f. Chain pipe
- g. Anchor
- h. Chain stopper
- i. Pelican hook
- j. Turnbuckle
- k. Anchor windlass
- l. Gypsy head
- m. Capstan
- n. Wildcat
- o. Bollard

---

(Signature and Date)

.2 Define the following terms as applied to Marlinespike seamanship:

- a. Bight [ref. a, app. AI]
- b. Bitter end [ref. a, app. AI]
- c. Eye [ref. c, ch. 2]
- d. Eye splice [ref. b]
- e. Long splice [ref. b]
- f. Short splice [ref. b]
- g. Marlinespike [ref. a, ch. 3]
- h. Fid [ref. a, ch. 3]
- i. Flemish [ref. a, ch. 3]
- j. Coil [ref. a, ch. 3]
- k. Heaving line [ref. a, app. AI]
- l. Monkey fist [ref. c, ch. 2]
- m. Rattail stopper [ref. c, ch. 2]



## 142 DECK SEAMANSHIP FUNDAMENTALS (CONT'D)

- 142.2 n. Mousing [ref. c, ch. 2]  
o. Fake [ref. e, ch. 7]

---

(Signature and Date)

.3 Define the following terms related to mooring:

- a. Mooring line [ref. a, app. AI]
- b. Breast line [ref. a, app. AI]
- c. Forward spring line [ref. c, ch. 2]
- d. After spring line [ref. c, ch. 2]
- e. Bow/head line [ref. c, ch. 2]
- f. Stern line [ref. c, ch. 2]
- g. Tattletale line [ref. b]
- h. Round turn [ref. b]
- i. Figure eight turn [ref. b]
- j. Dip the eye [ref. c, ch. 2]
- k. Single up [ref. c, ch. 2]
- l. Double-up [ref. c, ch. 2]
- m. SWL [ref. c, ch. 2]
- n. Strain (e.g. heavy, moderate, and light) [ref. c, app. AI]
- o. Frap [ref. c, ch. 2]
- p. Rat guards [ref. c, ch. 2]
- q. Breast lines [ref. a, ch. 4]

---

(Signature and Date)

.4 Define the following terms related to deck equipment:

- a. Pad eye [ref. a, ch. 4]
- b. Lifelines [ref. a, ch. 4]
- c. Leadline [ref. a, ch. 4]
- d. Sea painter [ref. c, ch. 5]
- e. Boatswain's chair [ref. a, ch. 4]
- f. Jacob's ladder [ref. c, app. AI]
- g. Sea ladder [ref. c, app. AI]
- h. Boat boom [ref. a, ch. 5]
- i. Accommodation ladder [ref. a, ch. 4]

---

(Signature and Date)

## 142 DECK SEAMANSHIP FUNDAMENTALS (CONT'D)

- 142.5 List the size classifications of small stuff, lines, wires, and spring lays identifying the dimension upon which each classification is based. [ref. a, ch. 3; ref. b]

---

(Signature and Date)

- .6 Discuss the difference between synthetic, natural fiber, kevlar, and aramid mooring lines of identical size with respect to the following:

- a. Strength [ref. a, ch. 3; ref. d]
- b. Stretching characteristics [ref. a, ch. 3; ref. d]
- c. Ease of handling [ref. a, ch. 3; ref. b]
- d. Breaking characteristics [ref. a, ch. 3; ref. d]
- e. Environmental effects [ref. a, ch. 3; ref. d]

---

(Signature and Date)

- .7 Discuss the numbering sequence of standard mooring lines. [ref. a, ch. 4]

---

(Signature and Date)

- .8 Discuss the purpose of breast, forward spring, and after spring lines. [ref. a, ch. 4]

---

(Signature and Date)

- .9 Discuss the correct procedures for taking a mooring line to a set of bitts with respect to number and sequence of round turns and figure eight turns. [ref. c, ch. 2]

---

(Signature and Date)

- .10 Discuss the proper use of the sea painter with small boats. [ref. c, ch. 5]

---

(Signature and Date)

## 143 STANDARD COMMANDS FUNDAMENTALS

References:

- [a] Watch Officer's Guide (Stavridis), 14<sup>th</sup> Edition  
 [b] Ship's Information Book (SIB)
- 

143.1 Define the following ship control commands to the helm: [ref. a]

- a. Right/left (amount in degrees) rudder
- b. Right/left standard rudder
- c. Right/left full rudder
- d. Increase your rudder to (amount in degrees)
- e. Ease your rudder to (amount in degrees)
- f. Steady as you go
- g. Rudder amidships
- h. Shift your rudder
- i. Mind your helm
- j. Steer nothing to the left/right of (course in degrees)
- k. How's your rudder
- l. Mark your head
- m. Come right/left steer course (course in degrees)
- n. Hard right/left rudder
- o. Meet her

---

(Signature and Date)

.2 Define the following ship control commands to the lee helm: [ref. a]

- a. All/stbd/port engine(s) ahead one-third (two-thirds, standard, full, flank)
- b. All/stbd/port engine(s) back one-third (two-thirds, full)
- c. Engine ahead one-third (two-thirds, etc.)
- d. All engines/engine ahead (back) emergency
- e. Indicate (number) revolutions
- f. Indicate (ring-up) maneuvering combination
- g. Indicate turns for (number of) knots
- h. How's your engine(s)
- i. Indicate (number in percent) pitch
- j. All pitch (number) feet

---

(Signature and Date)

## 143 STANDARD COMMANDS FUNDAMENTALS (CONT'D)

143.3 Define the following standard commands to line handlers: [ref. a]

- a. Standby your lines
- b. Let go (line number)
- c. Let go all lines
- d. Send over (line number)
- e. Take a strain (line number)
- f. Slack (line number)
- g. Ease (line number)
- h. Hold (line number)
- i. Check (line number)
- j. Surge (line number)
- k. Take (line number) to the capstan
- l. Heave around (line number)
- m. Avast heaving (line number)
- n. Double-up (line number)
- o. Single up (line number)
- p. Take-in (line number) or all lines
- q. Castoff (line number) or all lines
- r. Shift number (line number)

---

(Signature and Date)

.4 Discuss the engine order commands to the lee helm with ships using a CRP propeller system. [ref. b]

---

(Signature and Date)

.5 Discuss the necessity for using exact phraseology for standard commands. [ref. a]

---

(Signature and Date)

.6 Discuss the purpose of issuing standard commands to ship control stations in the following format: [ref. a]

- a. Command
- b. Reply
- c. Action taken
- d. Report
- e. Acknowledgement

---

(Signature and Date)

## **143      STANDARD COMMANDS FUNDAMENTALS (CONT'D)**

143.7      Discuss the use of whistles, hand signals, and verbal commands to tugs. [ref. a]

---

(Signature and Date)

.8      Discuss the manner of issuing commands with respect to voice clarity, loudness, and phrasing (TEMPO). [ref. a]

---

(Signature and Date)

## 144 ANCHORING FUNDAMENTALS

### References:

- [a] NSTM S9086-TV-STM-000/CH-581, Anchoring
  - [b] NAVEDTRA 14343, Boatswain's Mate
  - [c] Naval Shiphandling (Crenshaw), 4<sup>th</sup> Edition
  - [d] Knight's Modern Seamanship, 18<sup>th</sup> Edition
  - [e] Dutton's Navigation and Piloting (Maloney), 14<sup>th</sup> Edition
- 

### 144.1 Describe the following:

- a. Stockless anchor [ref. a, sec. 4]
- b. Lightweight anchor (Danforth/LWT) [ref. a, sec. 4]
- c. Mushroom anchor [ref. a, sec. 4]
- d. Anchor fluke [ref. b, ch. 4]
- e. Anchor crown [ref. b, ch. 4]
- f. Anchor shank [ref. b, ch. 4]
- g. Anchor stock [ref. b, ch. 4]
- h. Anchor bending shackle [ref. b, ch. 4]
- i. Chain swivel [ref. b, ch. 4]
- j. Outboard swivel shot [ref. b, ch. 4]
- k. Anchor chain [ref. b, ch. 4]
- l. Detachable link and accessories [ref. b, ch. 4]
- m. Housing stopper [ref. b, ch. 4]
- n. Chain locker [ref. d, ch. 5]
- o. Riding stopper [ref. b, ch. 4]
- p. Clear hawse pendants [ref. b, ch. 4]
- q. Dip ropes [ref. b, ch. 4]
- r. Anchor buoys/floats [ref. b]
- s. Detachable end link (pear-shaped link) [ref. a, sec. 6]

---

(Signature and Date)

- .2 Discuss the procedures for making the anchor ready for letting go and for properly setting the anchor once dropped. [ref. b, ch. 4]

---

(Signature and Date)

## 144 ANCHORING FUNDAMENTALS (CONT'D)

144.3 Discuss the anchor chain with respect to the following: [ref. b, ch. 4]

- a. Size of link
- b. Length of chain
- c. Number of shots of chain
- d. Marking of detachable link between each shot of chain
- e. Yellow shot of chain
- f. Red shot of chain

---

(Signature and Date)

.4 Discuss the environmental and geographical considerations taken into account in determining the scope of anchor chain to employ and state the chain-to-water depth rule-of-thumb ratio. [ref. d, ch. 6]

---

(Signature and Date)

.5 Discuss the Mediterranean moor with respect to procedures, advantages, and disadvantages. [ref. d, ch. 6]

---

(Signature and Date)

.6 Discuss the bridge/navigation preparations for anchoring with respect to the following:

- a. Depth of water [ref. b, ch. 4]
- b. Type of bottom [ref. e, ch. 13]
- c. Approach to anchorage [ref. c, ch.6]
- d. Wind and current [ref. e, ch. 13]
- e. Use of wood chips [ref. c, ch. 6]
- f. Letting-go point [ref. e, ch. 13]
- g. Drop/head bearing [ref. d, ch. 8]
- h. Swing/drag/letting-go circle [ref. e, ch. 13]

---

(Signature and Date)

## **144 ANCHORING FUNDAMENTALS (CONT'D)**

144.7 Describe the frequency for an anchor report, to include: [ref. b, ch. 4]

- a. Amount of chain out
- b. How anchor chain tends
- c. Strain on chain

---

(Signature and Date)

.8 Discuss special considerations for anchoring an USW ship with a bow-mounted sonar dome rubber window. [ref. c, ch. 6]

---

(Signature and Date)

.9 Discuss maximum safe scope of chain, use of the nomograph, and the hammer lock moor. [ref. a, sec. 2; ref. c, ch. 6]

---

(Signature and Date)



**145 BOUY MOORING FUNDAMENTALS**

References:

- [a] NAVEDTRA 14343, Boatswain's Mate  
[b] Naval Shiphandling (Crenshaw), 4<sup>th</sup> Edition
- 

145.1 Define the following:

- a. Mooring shackle [ref. a, ch. 4]
- b. Mooring swivel [ref. a], ch. 4
- c. Buoy hook [ref. b, ch. 6]
- d. Buoy wire/line [ref. a, ch. 4]
- e. Chain hook [ref. a]
- f. Trolley shackle [ref. a, ch. 4]
- g. Mooring messenger [ref. a, ch. 4]
- h. Slip wire [ref. a, ch. 4]
- i. Dip rope [ref. a, ch. 4]
- j. Anchor chain [ref. a, ch. 4]
- k. Easing out line [ref. a, ch. 4]
- l. Buoy wire/line [ref. a, ch. 4]

---

(Signature and Date)

.2 Describe the trolley method of mooring to a buoy, including the following:  
[ref. b, ch. 6]

- a. Function of buoy party
- b. Purpose of buoy wire/line
- c. Purpose of trolley shackles
- d. Transferring mooring shackle to buoy

---

(Signature and Date)

.3 Describe the ordinary (dip rope) method of mooring to a buoy, including the following: [ref. a, ch. 4]

- a. Function of a buoy party
- b. Purpose of dip rope
- c. Transferring mooring shackle to buoy

---

(Signature and Date)

## **145 BOUY MOORING FUNDAMENTALS (CONT'D)**

145.4 Compare mooring to a buoy and anchoring with respect to: [ref. b, ch. 6]

- a. Strength of moor
- b. Required amount of space
- c. Amount of preparation required
- d. Ease in getting underway

---

(Signature and Date)

.5 Describe wind and current considerations during a mooring to buoy. [ref. b, ch. 4]

---

(Signature and Date)

.6 Describe the buoy party and the special safety precautions that apply:

- a. Swimming qualifications of buoy party [ref. a, ch. 4]
- b. Protective clothing of buoy party [ref. a, ch. 4]
- c. Position of buoy party when passing chain, M ship, and retrieving chain [ref. a, ch. 4]
- d. Position of boat when taking messenger to the buoy [ref. b, ch. 6]

---

(Signature and Date)

## 146 CONNECTED UNDERWAY REPLENISHMENT (CONREP) FUNDAMENTALS

### References:

- [a] NWP 4-01.4, Underway Replenishment
  - [b] NAVEDTRA 14343, Boatswain's Mate
  - [c] ATP 1(C), Allied Maritime Tactical Signal and Maneuvering Book, Vol. II
- 

146.1 Discuss the following tactical terminology:

- a. Control ship [ref. a, ch. 2]
- b. Approach ship [ref. a, ch. 2]
- c. Delivery ship [ref. a, ch. 2]
- d. Receiving ship [ref. a, ch. 2]
- e. Lifeguard station [ref. c, ch. 5]
- f. Standby/waiting station [ref. c, ch. 5]
- g. Silent UNREP [ref. a, ch. 1]
- h. Astern refueling [ref. a, ch. 3]

---

(Signature and Date)

.2 Discuss the following equipment related terminology:

- a. Inhaul/outhaul lines [ref. b, ch. 10]
- b. Messenger [ref. b, ch. 10]
- c. Winch [ref. a, ch. 2]
- d. Bolo [ref. a, ch. 2]
- e. Line-throwing gun [ref. a, ch. 2]
- f. Kingpost [ref. a, ch. 5]
- g. Riding lines [ref. a, ch. 3]
- h. Easing out line [ref. a, ch. 3]
- i. Hull contour lights [ref. a, ch. 2]
- j. Hose saddles [ref. a, ch. 3]
- k. Saddle whips [ref. a, ch. 3]
- l. STREAM [ref. a, ch. 4]
- m. Ram tensioner [ref. a, ch. 4]
- n. Trolley [ref. a, ch. 4]
- o. Cargo drop reel [ref. a, ch. 4]
- p. Sliding pad eye [ref. a, ch. 4]
- q. STREAM support leg [ref. a, ch. 4]
- r. Pendant receiving station [ref. a, ch. 4]
- s. Span wire [ref. a, ch. 3]
- t. End fitting [ref. a, ch. 3]

## 146 CONNECTED UNDERWAY REPLENISHMENT (CONREP) FUNDAMENTALS (CONT'D)

- 146.2
- u. Robb coupling [ref. a, ch. 3]
  - v. Probe & receiver [ref. a, ch. 3]
  - w. NATO breakable spool [ref. a, ch. 3]
  - x. Traveling SURF [ref. a, ch. 4]
  - y. STAR [ref. a, ch. 4]
  - z. MK 5 strongback (Gullwing) [ref. a, ch. 6]

---

(Signature and Date)

- .3 Discuss how replenishment course, speed, and method are determined based on the following: [ref. a, ch. 2]

- a. Sea state
- b. Wind direction
- c. Tactical considerations

---

(Signature and Date)

- .4 For the following replenishment personnel, state their identifying hardhat color: [ref. a, ch. 2]

- a. Safety Observer
- b. Rig Captain
- c. Riggers
- d. Signalman
- e. Corpsman
- f. Gunner's mate
- g. Winch Operator

---

(Signature and Date)

## **146      CONNECTED UNDERWAY REPLENISHMENT (CONREP) FUNDAMENTALS (CONT'D)**

146.5      Discuss the following underway replenishment communication capabilities:  
[ref. a, ch. 2]

- a.      Bridge-to-bridge sound-powered telephone
- b.      Station-to-station sound-powered telephone
- c.      Whistle signals
- d.      Hand signals with paddles/light wands
- e.      Electric megaphone
- f.      Radios

---

(Signature and Date)

.6      Discuss transferring/receiving station markings with respect to the following:  
[ref. a, ch. 2]

- a.      Station marker light box (night)
- b.      Bunting or painted area (day)
- c.      Obstruction lights
- d.      Station keeping devices

---

(Signature and Date)

.7      Discuss the purpose of the phone and distance line and describe it with respect to  
the following: [ref. a, ch. 2]

- a.      Distance between markers
- b.      Color of markers
- c.      Night lighting of markers

---

(Signature and Date)

.8      Discuss the hand-held police whistle signals exchanged by delivery and receiving  
ship stations with respect to the following: [ref. a, ch. 2]

- a.      Number of blasts
- b.      Meaning of blasts

---

(Signature and Date)

## **146      CONNECTED UNDERWAY REPLENISHMENT (CONREP) FUNDAMENTALS (CONT'D)**

146.9      Discuss the meaning of the following visual flaghoists/flashing light used by the delivery and/or receiving ship: [ref. c, ch. 2]

- a.      ROMEO at the dip
- b.      ROMEO closed up
- c.      ROMEO hauled down
- d.      PREP at the dip
- e.      PREP closed up
- f.      PREP hauled down
- g.      BRAVO closed up
- h.      BRAVO at the dip
- i.      BRAVO hauled down

---

(Signature and Date)

.10      Discuss the specific advantages and limitations of CONREP as compared to VERTREP. [ref. a, ch. 9]

---

(Signature and Date)

.11      Discuss the Venturi effect with regard to CONREP. [ref. a, ch. 2]

---

(Signature and Date)

## 147 AVIATION OPERATIONS ON SURFACE SHIPS FUNDAMENTALS

### References:

- [a] NWP 3-04.1M, Helicopter Operating Procedures for Air Capable Ships
  - [b] NAVAIR 00-80T-113, Aircraft Signals NATOPS Manual (01 Dec 2001)
  - [c] NAVAIR 00-80R-14, NATOPS U.S. Navy Aircraft Firefighting and Rescue Manual (01 Sep 2001)
  - [d] Seamanship Fundamentals for the Deck Officer (Dodge and Kyriss), 1981
  - [e] NAVAIR 00-80T-106, LHA/LHD NATOPS (01 Nov 2002)
- 

147.1 Define the following:

- a. HIFR [ref. a, ch. 4]
- b. Hot pump [ref. a, ch. 4]
- c. Cold pump [ref. a, ch. 4]
- d. Amber deck [ref. a, ch. 4]
- e. Red deck [ref. a, ch. 4]
- f. Green deck [ref. a, ch. 4]
- g. FOD [ref. a, ch. 2]
- h. LSE [ref. a, ch. 1]
- i. HCO [ref. a, ch. 1]
- j. Vertical replenishment [ref. a, ch. 8]
- k. LSO [ref. a, ch. 1]
- l. RAST [ref. a, ch. 10]
- m. Amphibious Air Traffic Control Center [ref. e]

---

(Signature and Date)

.2 Discuss the communications between aircraft, flight control, and ships during aviation operations with respect to the following:

- a. UHF voice [ref. a, ch. 4]
- b. Signal flags [ref. a, ch. 4]
- c. Hand signals [ref. a, ch. 4; ref. b, chs. 2, 3]
- d. Lighting signals [ref. a, ch. 4]

---

(Signature and Date)

## **147 AVIATION OPERATIONS ON SURFACE SHIPS FUNDAMENTALS (CONT'D)**

147.3 Discuss the aviation NAVAIDS to include the following: [ref. a]

- a. TACAN [ch. 6]
- b. Nondirectional beacon (UHF homer) [ch. 6]
- c. SGSI [ch. 4]
- d. Homing beacon/grimes light [ch. 4]
- e. Horizon reference system [ch. 4]

---

(Signature and Date)

.4 Discuss the crash crew/repair party equipment necessary for aviation operations on surface ships. [ref. c, ch. 9]

---

(Signature and Date)

.5 Discuss the refueling equipment necessary to provide fueling capability including the following: [ref. a, ch. 4]

- a. Refueling hose
- b. Wiggins quick-release coupling
- c. Grounding strap

---

(Signature and Date)

.6 Discuss the purpose, capabilities, and limitations of HIFR. [ref. a, ch. 4]

---

(Signature and Date)

.7 Discuss the envelope required for the following to conduct aviation operations: [ref. a, app. B]

- a. Wind speed and direction
- b. Roll and pitch
- c. Day/night

---

(Signature and Date)



## **147 AVIATION OPERATIONS ON SURFACE SHIPS FUNDAMENTALS (CONT'D)**

147.8 Discuss the importance of flight deck safety, including the following:

- a. Removing all unnecessary personnel [ref. a, ch. 2]
- b. Minimizing hover time for helos [ref. d, ch. 2]
- c. Policing a flight deck and surrounding area to eliminate FOD [ref. a, ch. 2]
- d. Lowering obstructions (e.g. antenna) [ref. a, ch. 4]

---

(Signature and Date)

.9 Describe the considerations for planning, staging, and conducting a VERTREP, including the following: [ref. a, ch. 8]

- a. Number of helicopters
- b. Disposition of ships
- c. Sea state
- d. Helicopter fuel load
- e. Retrograde

---

(Signature and Date)

.10 Discuss the impact of the following emergencies on flight operations:

- a. In-flight emergency [ref. a, ch. 2]
- b. Helo crash on deck [ref. c, ch. 9]
- c. Loss of communications [ref. a, ch. 6]

---

(Signature and Date)

.11 Discuss the purpose, capabilities, limitations, and ship lighting configuration for NVG operations. [ref. a, ch. 4]

---

(Signature and Date)

.12 Discuss wave-off procedures. [ref. a, ch. 6]

---

(Signature and Date)

**148 TOWING FUNDAMENTALS**

## References:

- [a] Naval Shiphhandling (Crenshaw), 4<sup>th</sup> Edition
  - [b] NAVEDTRA 14343, Boatswain's Mate
  - [c] NAVSEA SL740-AA-MAN-010 (Rev. 1), U.S. Navy Towing Manual, Ch. 3
- 

148.1 Define the following: [ref. b, ch. 4]

- a. Catenary
- b. Instep

---

(Signature and Date)

.2 Discuss the considerations for making the approach when taking a disabled vessel in tow, including the following:

- a. Wind velocity and direction [ref. a, ch. 9]
- b. Sea state [ref. a, ch. 9]
- c. The four methods of approaching a tow [ref. b, ch. 7]

---

(Signature and Date)

.3 Discuss the procedures for getting underway, accelerating, and changing course once vessel is secured with a towline. [ref. a, ch. 9]

---

(Signature and Date)

.4 Discuss the action to be taken in the event of loss of propulsion by the towing vessel. [ref. b, ch. 7]

---

(Signature and Date)

## **148      TOWING FUNDAMENTALS (CONT'D)**

148.5      Discuss the purpose of the following:

- a.      Towing hawser [ref. c]
- b.      Towing wire [ref. b, ch. 7]
- c.      Towing pad eye [ref. b, ch. 7]
- d.      Chafing chain [ref. c]
- e.      Messenger [ref. c]

---

(Signature and Date)

## 149 SHIPHANDLING FUNDAMENTALS

### References:

- [a] Naval Shiphandling (Crenshaw), 4<sup>th</sup> Edition
  - [b] Ship's Tactical Characteristics Folder
  - [c] Knight's Modern Seamanship, 18<sup>th</sup> Edition
  - [d] Dutton's Navigation and Piloting (Maloney), 14<sup>th</sup> Edition
  - [e] Range Finder Equipment Users Manual
  - [f] Farwells Rules of the Nautical Road (Bassett & Smith)
  - [g] The American Practical Navigator (Bowditch), 2002
- 

148.1 Define the following:

- a. Surge [ref. a, ch. 12]
- b. Pivot point [ref. a, ch. 3]
- c. Side force [ref. a, ch. 3]
- d. Screw [ref. a, ch. 3]
- e. Rudder [ref. a, ch. 3]
- f. Advance [ref. d, ch. 13]
- g. Transfer [ref. d, ch. 13]
- h. Target angle [ref. g]
- i. Bearing drift [ref. f, ch. 8]
- j. Twist [ref. a, ch. 3]
- k. Bow thruster [ref. c, ch. 6]
- l. Steerage way [ref. a, ch. 5]
- m. APU [ref. c, ch. 4]
- n. Stern walk [ref. a, ch. 3]

---

(Signature and Date)

.2 Describe the following as defined in the ship's tactical characteristics folder:  
[ref. b]

- a. Location and number of screws
- b. Location and number of rudders
- c. Height of eye of bridge/flying bridge
- d. Length of ship
- e. Beam of ship
- f. Standard tactical diameter
- g. Reduced tactical diameter
- h. Location of pivot point
- i. Acceleration/deceleration

## 149 SHIPHANDLING FUNDAMENTALS (CONT'D)

- 149.2 j. Draft of ship  
k. Height of mast

---

(Signature and Date)

- .3 Discuss the usefulness of the following equipment/devices in assisting the OOD to perform shiphandling duties:

- a. Stadimeter [ref. d, ch. 7]
- b. Binoculars [ref. d, ch. 7]
- c. Bearing circle [ref. d, ch. 7]
- d. Telescopic alidade [ref. d, ch. 7]
- e. Anemometer [ref. d, ch. 7]
- f. Pit log [ref. d, ch. 7]
- g. Pitsword [ref. d, ch. 7]
- h. Gyrocompass [ref. d, ch. 7]
- i. Radar [ref. a, ch. 16]
- j. Fathometer [ref. a, ch. 7]
- k. RPM indicator [ref. d, ch. 7]
- l. Night vision device [ref. d, ch. 29]
- m. Laser range finder [ref. e]
- n. Pitch indicator [ref. d, ch. 7]
- o. GPS [ref. d, ch. 34]

---

(Signature and Date)

- .4 Discuss the purpose and accuracy of the stadimeter when used in conventional and inverted methods. [ref. g, ch. 6]

---

(Signature and Date)

- .5 Describe the procedure for estimating ranges with 7x50 binoculars using the field of vision. [ref. a, ch. 1]

---

(Signature and Date)

- .6 Discuss the usefulness of the three-minute rule and the radian rule. [ref. a, ch. 1]

---

(Signature and Date)

## 149 SHIPHANDLING FUNDAMENTALS (CONT'D)

149.7 Discuss the importance of height of eye to the visible horizon. [ref. d, ch. 19]

---

(Signature and Date)

.8 Discuss the following relating to controllable and uncontrollable forces affecting the ship and the influence of each upon shiphandling: [ref. a]

- a. Rudders [ch. 2]
- b. Screws [ch. 2]
- c. Freeboard [ch. 2]
- d. Sail area [ch. 2]
- e. Screw wash [ch. 2]
- f. Side forces [ch. 2]
- g. APU's [ch. 2]
- h. Bow thrusters [ch. 2]
- i. Wind [ch. 3]
- j. Current [ch. 3]
- k. Mooring lines [ch. 4]
- l. Ship speed through water (less than 5 knots) [ch. 6]
- m. Ship speed through water (greater than 5 knots) [ch. 6]
- n. Water depth, bottom effect, ships alongside, pier type [ch. 6]
- o. Tugboats [ch. 18]
- p. Sink [ch. 10]
- q. Squat [ch. 2]
- r. Pounding [ch. 10]
- s. Bank suction [ch. 10]

---

(Signature and Date)

.9 Discuss the reasons why the Conning Officer must anticipate the needs of the engines and rudder when maneuvering the ship. [ref. a, ch. 1]

---

(Signature and Date)

.10 Discuss the procedures for twisting a ship. [ref. a, ch. 3]

---

(Signature and Date)

.11 Discuss the principles and considerations in maneuvering a single-screw ship. [ref. a, ch. 3]

---

(Signature and Date)

## **149 SHIPHANDLING FUNDAMENTALS (CONT'D)**

- 149.12 Discuss the principles of a controllable-pitch screw and its effect on the handling of a ship. [ref. c, ch. 9]

---

(Signature and Date)

- .13 Discuss the principles of a bow thruster and its effect on the handling of a ship. [ref. c, ch. 4]

---

(Signature and Date)

- .14 Discuss the principles of APUs and their effect on ship handling. [ref. c, ch. 4]

---

(Signature and Date)

- .15 Explain the effect on steering while moving astern. [ref. c, ch. 9]

---

(Signature and Date)

- .16 Discuss tug characteristics/limitations and tug makeups. [ref. a, ch. 18]

---

(Signature and Date)

**150 SPECIAL/EMERGENCY EVOLUTIONS FUNDAMENTALS**

## References:

- [a] Watch Officer's Guide (Stavridis), 14<sup>th</sup> Edition
  - [b] Knight's Modern Seamanship, 18<sup>th</sup> Edition
  - [c] Ship's Engineering Operating Sequencing System (EOSS)
  - [d] Commanding Officer's Standing Orders
  - [e] Ship's Abandon Ship Bill
  - [f] NWP 4-01.4, Underway Replenishment
  - [g] Naval Shiphandling (Crenshaw), 4<sup>th</sup> Edition
  - [h] NAVEDTRA 14343, Boatswain's Mate
  - [i] The Boat Officers Handbook (Winters), Second Edition, App. F
  - [j] NWP 3-50.1A, Navy Search and Rescue (SAR) Manual
  - [k] NWP 3-20.6 (Series), Ship's Class Tactical Manual
- 

150.1 Define the following:

- a. Emergency breakaway [ref. f, ch. 2]
- b. Collision [ref. a, ch. 8]
- c. Hard aground [ref. b, ch. 11]
- d. Soft aground [ref. b, ch. 11]

---

(Signature and Date)

.2 Discuss the effects on control of the ship resulting from the following engineering casualties: [ref. c]

- a. Loss of lube oil pressure
- b. Loss of vacuum
- c. Boiler casualties
- d. Loss of electrical power
- e. Loss of pitch control
- f. Loss of steering control
- g. Gas turbine casualties
- h. Diesel casualties
- i. Loss of control air
- j. Jammed throttle
- k. Major lube oil/fuel oil leak
- l. Loss of firemain pressure
- m. Main space fire



## **150 SPECIAL/EMERGENCY EVOLUTIONS FUNDAMENTALS (CONT'D)**

- 150.2    n.    Shafting  
          o.    MRG

---

(Signature and Date)

- .3       Discuss the purpose of the abandon ship bill and the following procedures presented therein: [ref. e]

- a.      Who decides to abandon ship
- b.      Word to be passed
- c.      Actions taken by the crew
- d.      Actions taken by personnel assigned to emergency destruction

---

(Signature and Date)

- .4       Describe an emergency breakaway CONREP, including the following: [ref. f, ch. 6]

- a.      Who may initiate
- b.      Who controls evolution once initiated
- c.      Reasons for initiating

---

(Signature and Date)

- .5       Describe the following man overboard recovery procedures to include variables in considerations for the use and reasons for employment:

- a.      Helicopter [ref. g, ch. 9]
- b.      Boat [ref. g, ch. 9]
- c.      Shipboard [ref. a, ch. 6]
  - 1.      Williamson turn
  - 2.      Anderson turn
  - 3.      Racetrack turn
  - 4.      Delayed turn
  - 5.      Y-backing

---

(Signature and Date)

## **150 SPECIAL/EMERGENCY EVOLUTIONS FUNDAMENTALS (CONT'D)**

150.6 Discuss the use of the following items in the recovery of a man overboard:  
[ref. a, ch. 6]

- a. Life ring/buoy
- b. Smoke float
- c. Strobe light
- d. Searchlights
- e. Dye marker

---

(Signature and Date)

.7 Discuss the following items as they apply to the lifeboat recovery method:

- a. Manning of the boat [ref. h, ch. 6]
- b. Semaphore flags [ref. i]
- c. Very pistol [ref. i]
- d. Signal light [ref. i]

---

(Signature and Date)

.8 Discuss the use of the following in a shipboard recovery: [ref. j, ch. 1]

- a. Cargo net
- b. Portable davit line with harness
- c. Jacob's ladder
- d. Swimmer
- e. Stokes litter
- f. Communications

---

(Signature and Date)

.9 Discuss the factors the OOD must consider when maneuvering the ship in restricted waters. [ref. g, ch. 10]

---

(Signature and Date)

.10 Discuss the factors the OOD must consider in posting watches when maneuvering in low or restricted visibility. [ref. a, ch. 8]

---

(Signature and Date)

## **150 SPECIAL/EMERGENCY EVOLUTIONS FUNDAMENTALS (CONT'D)**

- 150.11 Discuss the factors that must be considered before an imminent collision.  
[ref. a, ch. 8]

---

(Signature and Date)

- .12 Describe the Command's Restricted Maneuvering Doctrine. [ref. d]

---

(Signature and Date)

- .13 Discuss the factors the OOD must consider when informed of possible SDRW casualty. [ref. d]

---

(Signature and Date)

- .14 Discuss the factors that must be considered in the event of a CBR attack. [ref. k]

---

(Signature and Date)

## 151 WEATHER FUNDAMENTALS

### References:

- [a] The American Practical Navigator (Bowditch), 2002
  - [b] Dutton's Navigation and Piloting (Maloney), 14<sup>th</sup> Edition
  - [c] OPNAVINST 3120.32C (Change 5), Standard Organization and Regulations Manual of the U.S. Navy (SORM), Ch. 6
  - [d] NAVEDTRA 14338, Quartermaster
- 

151.1 Define the following:

- a. Air mass [ref. d, ch. 10]
- b. Cold/warm/occluded front [ref. d, ch. 10]
- c. Tropical cyclone [ref. a, ch. 39]

---

(Signature and Date)

.2 Discuss the purpose of the following shipboard weather instruments: [ref. d, ch. 10]

- a. Anemometer
- b. Barometer
- c. Thermometer
- d. Psychrometer

---

(Signature and Date)

.3 Describe a tropical cyclone in both the northern and southern hemisphere, including the following:

- a. Wind circulation [ref. d, ch. 10]
- b. Dangerous semicircle [ref. a, ch. 39]
- c. Less dangerous semicircle [ref. a, ch. 39]
- d. Evasive courses of action [ref. a, ch. 39]
- e. Rate and direction of movement [ref. a, ch. 39]

---

(Signature and Date)

## 151 WEATHER FUNDAMENTALS (CONT'D)

151.4 Discuss the information available on the following Naval Oceanography Center weather messages:

- a. OPAREA forecast [ref. d, ch. 9]
- b. Tropical warnings [ref. a, ch. 1]
- c. Wind warnings [ref. a, ch. 1]
- d. High seas warnings [ref. a, ch. 1]
- e. WEAX [ref. b, ch. 41]
- f. OTSR [ref. b, ch. 21]

---

(Signature and Date)

.5 Discuss the responsibilities of the OOD in heavy weather. [ref. c]

---

(Signature and Date)

.6 Discuss the significant factors in the formation and prediction of fog. [ref. b, ch. 10]

---

(Signature and Date)

.7 Discuss the requirements for logging and reporting weather information.  
[ref. b, ch. 10]

---

(Signature and Date)

## 152 TACTICAL MANEUVERING FUNDAMENTALS

### References:

- [a] ATP 1(C), Allied Maritime Tactical Instructions and Procedures, Vol. I
  - [b] ATP 1(C), Allied Maritime Tactical Signal and Maneuvering Book, Vol. II
  - [c] International Code of Signals (Pub. 102)
- 

### 152.1 Define the following:

- a. Formation [ref. a, ch. 3]
- b. Guide [ref. a, ch. 2]
- c. OTC [ref. a, ch. 1]
- d. Distance (ordered, standard) [ref. a, ch. 2]
- e. Maneuvering interval [ref. a, ch. 2]
- f. Extended maneuvering interval [ref. a, ch. 2]
- g. Sequence numbers [ref. a, ch. 3]
- h. Tactical diameter (standard, reduced) [ref. a, ch. 2]
- i. Stationing speed [ref. a, ch. 2]
- j. Operational speed [ref. a, ch. 2]
- k. Signaled speed [ref. a, ch. 2]
- l. Main body [ref. a, ch. 2]
- m. Support ships [ref. a, ch. 9]
- n. Screen [ref. a, ch. 3]
- o. Turn [ref. b, ch. 6]
- p. CORPEN [ref. b, ch. 7]
- q. Search turn [ref. b, ch. 7]
- r. Formation axis [ref. a, ch. 4]
- s. Formation center [ref. a, ch. 4]
- t. Screen axis [ref. a, ch. 34]
- u. Signaled course [ref. a, ch. 7]
- v. Base course [ref. a, ch. 7]
- w. Base speed [ref. a, ch. 8]

---

(Signature and Date)

## 152 TACTICAL MANEUVERING FUNDAMENTALS (CONT'D)

152.2 Discuss the characteristics of the following single-line formations: [ref. b, ch. 4]

- a. Column
- b. Loose line of column
- c. Column open order
- d. Line abreast
- e. Loose line abreast
- f. Line of bearing
- g. Loose line of bearing
- h. Diamond

---

(Signature and Date)

.3 Discuss the characteristics of the following formations and discuss the principles upon which each is based: [ref. a, ch. 3]

- a. Destroyer
- b. Carrier
- c. Transport/logistic
- d. Replenishment
- e. Amphibious group sector

---

(Signature and Date)

.4 Discuss the rescue destroyer stations, in terms of criteria for selection, bearing, and range from the ship operating aircraft and station limits. [ref. a, ch. 6]

---

(Signature and Date)

.5 Discuss the rescue destroyer stations assigned during night helicopter ship operations in terms of criterion for selection, bearing, and range from ship operating helicopters. [ref. a, ch. 6]

---

(Signature and Date)

.6 Discuss the responsibilities of a unit assigned as plane guard. [ref. a, ch. 6]

---

(Signature and Date)

## **152 TACTICAL MANEUVERING FUNDAMENTALS (CONT'D)**

152.7 State the situations in which the guide automatically changes. [ref. b, ch. 1]

---

(Signature and Date)

.8 State the rules for units exchanging stations in line formations. [ref. b, ch. 5]

---

(Signature and Date)

.9 State the procedures for reversing the order of ships in a column. [ref. b, ch. 4]

---

(Signature and Date)

.10 Discuss the special rules of the road applicable to allied naval ships and the circumstances to which they apply. [ref. a, ch. 2]

---

(Signature and Date)

.11 Discuss sea manners and customs. [ref. a, ch. 2]

---

(Signature and Date)

.12 Discuss the purpose of the U.S. - U.S.S.R. incidents at sea agreement. [ref. c]

---

(Signature and Date)

.13 State the rules for recovery of a man overboard when the ship is in formation. [ref. a, ch. 2]

---

(Signature and Date)

.14 Discuss actions necessary if a breakdown occurs while maneuvering in a column formation. [ref. a, ch. 2]

---

(Signature and Date)



**153 NAUTICAL CHARTS AND PUBLICATIONS FUNDAMENTALS**

## References:

- [a] The American Practical Navigator (Bowditch), 2002
  - [b] NAVEDTRA 14338, Quartermaster
  - [c] NIMA Catalog of Maps, Charts, and Pubs, 8<sup>th</sup> Edition
- 

153.1 Discuss the use, construction, advantages, and disadvantages of the following (paper and/or electronic format): [ref. a, ch. 3]

- a. Coastal charts
- b. Harbor charts
- c. Sailing charts
- d. Mercator chart projections
- e. Gnomonic chart projections

---

(Signature and Date)

.2 State the use of the following publications and discuss the information contained in each:

- a. Chart No. 1, Nautical Charts Symbols and Abbreviations [ref. a, ch. 4]
- b. Nautical Almanac [ref. a, ch. 4]
- c. Notice to Mariners [ref. a, ch. 4]
- d. Light List/List of Lights [ref. a, ch. 4]
- e. OPAREA Charts [ref. a, ch. 4]
- f. Hydrolants/Hdropacs [ref. a, ch. 4]
- g. Sailing Directions [ref. a, ch. 4]
- h. World port index [ref. a, ch. 4]
- i. Fleet guides [ref. a, ch. 4]
- j. Coast pilots [ref. a, ch. 4]
- k. Catalog of charts [ref. c]

---

(Signature and Date)

.3 State the function of NIMA. [ref. a, ch. 3]

---

(Signature and Date)

## **153 NAUTICAL CHARTS AND PUBLICATIONS FUNDAMENTALS (CONT'D)**

- 153.4 Discuss how nautical charts and publications are inventoried, ordered, corrected, and catalogued aboard ships (paper and electronic format). [ref. b, chs. 1, 3]

---

(Signature and Date)

- .5 Describe the use of the following as applied to the Mercator chart: [ref. a, ch. 3]

- a. Scale
- b. Edition number
- c. NIMA number
- d. Reference plane
- e. Title
- f. Compass rose
- g. Variation and secular change
- h. Datum

---

(Signature and Date)

**154 TIDES AND CURRENTS FUNDAMENTALS**

References:

[a] Dutton's Navigation and Piloting (Maloney), 14<sup>th</sup> Edition

---

154.1 Define the following:

- a. Tidal currents [ch. 9]
- b. Tides [ch. 9]
- c. Range of tides [ch. 9]
- d. Diurnal [ch. 10]
- e. Semidiurnal [ch. 10]
- f. Mixed [ch. 10]
- g. Spring [ch. 10]
- h. Neap [ch. 10]
- i. Flood [ch. 9]
- j. Ebb [ch. 9]
- k. Slack [ch. 9]
- l. Stand [ch. 9]
- m. Ocean currents [ch. 9]
- n. Mean range of tide [ch. 9]
- o. Tide rips [ch. 9]
- p. Minimum before flood [ch. 10]
- q. Minimum before ebb [ch. 10]

---

(Signature and Date)

.2 Discuss the information contained in tide and tidal current tables. [chs. 9, 10]

---

(Signature and Date)

.3 Discuss the effect of current on your ship at sea and in restricted waters. [ch. 9]

---

(Signature and Date)

## 155 COMPASS ERROR FUNDAMENTALS

### References:

- [a] The American Practical Navigator (Bowditch), 2002
  - [b] NAVEDTRA 14338, Quartermaster
  - [c] COMNAVAIRFORINST/COMNAVSURFORINST 3530.4A, Surface Ship Navigation Department Organization and Regulations Manual
- 

- 155.1 State the methods and required frequency of determining gyro, magnetic compass, and DFGMC error both at sea and in restricted waters. [ref. b, ch. 2; ref. c, app. I]

\_\_\_\_\_  
(Signature and Date)

- .2 Discuss the application of gyro error to obtain true bearings and courses. [ref. a, ch. 6]

\_\_\_\_\_  
(Signature and Date)

- .3 Discuss the application of variation and deviation to magnetic heading to obtain true heading. [ref. a, ch. 6; ref. b, ch. 2]

\_\_\_\_\_  
(Signature and Date)

- .4 State the functions of degaussing coils and discuss their effect on the magnetic compass. [ref. a, ch. 6; ref. b, ch. 2]

\_\_\_\_\_  
(Signature and Date)

- .5 Discuss the reasons for and methods of magnetic compass compensation and adjustment. [ref. a, ch. 6]

\_\_\_\_\_  
(Signature and Date)

## 156 NAVIGATION FUNDAMENTALS

### References:

- [a] Dutton's Navigation and Piloting (Maloney), 14<sup>th</sup> Edition
  - [b] ATP 1(C), Allied Maritime Tactical Signal and Maneuvering Book, Vol. II
  - [c] OPNAVINST 3120.32C (Change 5), Standard Organization and Regulations Manual of the U.S. Navy (SORM)
  - [d] Ship's Class Tactical Manual
  - [e] Nautical Almanac
  - [f] Manufacturer's Technical Manual
- 

156.1 Discuss the following in terms of how they are obtained and used in terrestrial navigation:

- a. True bearing [ref. a, ch. 2]
- b. Navigational range [ref. a, ch. 4]
- c. LOP [ref. a, ch. 11]
- d. Fix [ref. a, ch. 8]
- e. Running fix [ref. a, ch. 8]
- f. DR [ref. a, ch. 8]
- g. SOA [ref. a, ch. 8]
- h. SOG [ref. a, ch. 12]
- i. Set [ref. a, ch. 10]
- j. Drift [ref. a, ch. 10]
- k. Danger bearings [ref. a, ch. 11]
- l. Danger ranges [ref. a, ch. 11]
- m. Bottom profile [ref. a, ch. 36]
- n. Visibility of lights [ref. a, ch. 4]
- o. Turn bearings [ref. a, ch. 7]
- p. Great circle [ref. a, ch. 11]
- q. Rhumb line [ref. a, ch. 11]
- r. COG [ref. a, ch. 2]
- s. Intended track [ref. a, ch. 8]
- t. PIM [ref. b, ch. 2]
- u. Relative bearing [ref. a, chs. 6, 11]
- v. CMG [ref. a, ch. 2]
- w. Advance and transfer [ref. a, ch. 7]
- x. Slide bar [ref. a, ch. 7]

---

(Signature and Date)

## 156 NAVIGATION FUNDAMENTALS (CONT'D)

156.2 Discuss the use of the following in terrestrial navigation:

- a. Fathometer [ref. a, ch. 7]
- b. Sonar [ref. a, ch. 15]
- c. Stadimeter [ref. a, ch. 7]
- d. Pit log [ref. a, ch. 7]
- e. Sextant angles (three-arm protractor) [ref. a, ch. 21]
- f. Leadline [ref. a, ch. 7]
- g. Alidade [ref. a, ch. 7]
- h. Radar [ref. a, ch. 16]
- i. Bearing circle [ref. a, ch. 7]
- j. Fire control radar [ref. d]
- k. PMP arm [ref. a, ch. 7]

---

(Signature and Date)

.3 Discuss the duties and responsibilities of the OOD, navigator, and members of the navigation team while piloting in restricted waters. [ref. c, ch. 6; ref. d]

---

(Signature and Date)

.4 Define the following: [ref. a]

- a. Sight reduction tables [ch. 3]
- b. Navigational triangles [ch. 19]
- c. Celestial fix [ch. 19]
- d. Star time [ch. 23]
- e. LAN [ch. 27]

---

(Signature and Date)

.5 Discuss the information contained in the following sections of the Nautical Almanac: [ref. e]

- a. Introduction
- b. Explanation section
- c. Daily pages
- d. Increment and correction tables
- e. Front/back covers

---

(Signature and Date)

## 156 NAVIGATION FUNDAMENTALS (CONT'D)

156.6 Explain the use of the following instruments in celestial navigation: [ref. a]

- a. Marine sextant [ch. 11]
- b. Rude starfinder [ch. 20]
- c. Azimuth circle [ch. 28]
- d. Air almanac [chs. 6, 18]

---

(Signature and Date)

.7 Define the following: [ref. a, ch. 22]

- a. Zone time
- b. Greenwich mean time
- c. Time zone
- d. Zone description
- e. Standard time
- f. Daylight savings time
- g. Mean solar time
- h. Local mean time

---

(Signature and Date)

.8 Describe the following sources available to shipboard personnel to obtain the accurate time: [ref. a]

- a. Chronometer [ch. 22]
- b. GPS [ch. 34]

---

(Signature and Date)

.9 Discuss the principles of operation, advantages, disadvantages, and nominal accuracy of the following electronic navigation systems:

- a. LORAN [ref. a, ch. 32]
- b. SINS [ref. a, ch. 35]
- c. GPS [ref. a, ch. 34]
- d. Differential GPS [ref. a, ch. 34]
- e. WAAS [ref. f]

---

(Signature and Date)

## **156      NAVIGATION FUNDAMENTALS (CONT'D)**

156.10      How do your ship's electronic navigation systems interface with the following: [ref. d]

- a.      NTDS
- b.      TWCS
- c.      GCCS-M

---

(Signature and Date)



**157      NAVIGATION RULES FUNDAMENTALS**

References:

[a]      COMDTINST M16672.2D, Navigation Rules (Rule 1 through 38, ANNEX I - V)

---

157.1      Discuss Inland and International Rules of the Road and how they apply to good seamanship and collision avoidance.

---

(Signature and Date)

## 158 VISUAL COMMUNICATIONS FUNDAMENTALS

### References:

- [a] NAVEDTRA 14244, Signalman 3 & 2
  - [b] ATP 1(C), Allied Maritime Tactical Signal and Maneuvering Book, Vol. II
  - [c] International Code of Signals (Pub. 102)
  - [d] NWP 3-04.1M, Helicopter Operating Procedures for Air Capable Ships
- 

158.1 Discuss the proper procedures for flaghoist communications, including the following:  
[ref. a]

- a. Sending [ch. 6]
- b. Answering [ch. 6]
- c. Execution [ch. 5]
- d. Use of substitute pennants [ch. 6]
- e. Use of NEGAT pennant [ch. 5]
- f. Order of reading flags [ch. 5]
- g. Use of INTERROGATIVE [ch. 5]
- h. Visual responsibility [ch. 5]

---

(Signature and Date)

.2 Discuss proper procedures for flashing light communications, including the following: [ref. a, ch. 4]

- a. Directional
- b. Omnidirectional (yardarm blinkers)
- c. Nancy
- d. Infared

---

(Signature and Date)

.3 Discuss the advantages/disadvantages of each of the following methods used as a means of visual communications: [ref. a]

- a. Flaghoist [chs. 4, 5]
- b. Flashing light (directional, omnidirectional) [chs. 2, 4]
- c. Nancy [ch. 2]
- d. Semaphore [ch. 4]

---

(Signature and Date)

## 158 VISUAL COMMUNICATIONS FUNDAMENTALS (CONT'D)

- 158.4 Discuss the procedures for completing those sections of a visual message blank, normally completed by the OOD in drafting a visual message. [ref. a, ch. 3]

---

(Signature and Date)

- .5 Discuss the use of the Allied Tactical Signals Book (ATP 1(C), Vol. II), including the arrangement of signals, encoding, and decoding. [ref. b, ch. 1]

---

(Signature and Date)

- .6 Discuss the use of the International Code of Signals (Pub. 102), including the following: [ref. c]

- a. Purpose [ch. 1]
- b. Arrangement of signals [ch. 2]
- c. US/USSR supplementary signals [app. A]

---

(Signature and Date)

- .7 Discuss the procedures used in visual challenge and reply and the restrictions placed upon their use. [ref. a, ch. 4]

---

(Signature and Date)

- .8 Discuss the use of the following signal flags and pennants:

- a. Alfa [ref. b, ch. 2]
- b. Bravo [ref. b, ch. 2]
- c. Foxtrot [ref. b, ch. 2]
- d. Golf [ref. b, ch. 2]
- e. India [ref. b, ch. 2]
- f. Kilo [ref. b, ch. 2]
- g. Mike [ref. b, ch. 2]
- h. Oscar [ref. b, ch. 2]
- i. Papa [ref. b, ch. 2]
- j. Quebec [ref. b, ch. 2]
- k. Romeo [ref. b, ch. 2]
- l. Uniform [ref. b, ch. 2]
- m. Five [ref. b, ch. 2]
- n. Prep [ref. a, ch. 5]
- o. First substitute [ref. b, ch. 2]
- p. Third substitute [ref. b, ch. 2]

## **158 VISUAL COMMUNICATIONS FUNDAMENTALS (CONT'D)**

- 158.8    q.    Emergency [ref. b, ch. 2]  
         r.    Code Hotel [ref. c, ch. 1]  
         s.    Hotel [ref. b, ch. 2]  
         t.    Hotel one [ref. d, ch. 8]

---

(Signature and Date)

## 159 SURVIVAL AND SURVIVAL EQUIPMENT FUNDAMENTALS

### References:

- [a] OPNAVINST 3120.32C (Change 5), Standard Organization and Regulations Manual of the U.S. Navy (SORM), Ch. 6
  - [b] Ship's Abandon Ship Bill
  - [c] NAVEDTRA 14343, Boatswain's Mate
  - [d] NSTM S9086-TX-STM-010/CH-583 (Rev. 4), Boats and Small Craft
- 

159.1 Discuss the purpose of the Abandon Ship Bill. [ref. a, ch. 6]

\_\_\_\_\_  
(Signature and Date)

.2 Discuss who makes the final decision to abandon ship, including considerations leading to the decision. [ref. a, ch. 6]

\_\_\_\_\_  
(Signature and Date)

.3 Discuss the three phases of preparation for abandon ship. [ref. a, ch. 6]

\_\_\_\_\_  
(Signature and Date)

.4 Discuss the duties of the Mustering Petty Officer/Boat Officer at an Abandon Ship Station. [ref. a, ch. 6]

\_\_\_\_\_  
(Signature and Date)

.5 Discuss the duties of the ship's salvage/securing detail. [ref. a, ch. 6]

\_\_\_\_\_  
(Signature and Date)

.6 Discuss the duties of the officers in charge of debarkation areas. [ref. a, ch. 6]

\_\_\_\_\_  
(Signature and Date)

.7 Discuss the proper procedure for entering the water. [ref. b]

\_\_\_\_\_  
(Signature and Date)

## **159 SURVIVAL AND SURVIVAL EQUIPMENT FUNDAMENTALS (CONT'D)**

159.8 Discuss the proper procedure for swimming through flames. [ref. b]

---

(Signature and Date)

.9 Discuss the information provided by the navigator to be passed to the crew. [ref. b]

---

(Signature and Date)

.10 Discuss the proper procedures for rationing food and water. [ref. b]

---

(Signature and Date)

.11 Discuss the special equipment contained in each life raft. [ref. b]

---

(Signature and Date)

.12 Discuss procedures for releasing life rafts. [ref. c, ch. 5]

---

(Signature and Date)

.13 Describe the proper procedures for donning each of the following items, including the methods of water entry: [ref. b]

- a. CO<sub>2</sub> inflatable life preserver
- b. Inherently buoyant (Kapok) life preserver

---

(Signature and Date)

.14 Discuss the safety precautions which apply to:

- a. Overcrowding life rafts [ref. d, ch. 5]
- b. Keeping inflatable life rafts afloat and in an upright position [ref. b]
- c. Environmental considerations [ref. b]

---

(Signature and Date)

**160 BUOYS FUNDAMENTALS**

## References:

- [a] Chart No. 1, Nautical Chart Symbols, Abbreviations, and Terms  
 [b] Dutton's Navigation and Piloting (Maloney), 14<sup>th</sup> Edition
- 

160.1 Explain the following as applied to the U.S. buoy system, lateral buoy systems, the cardinal buoy system, and IALA (regions A and B):

- a. Color, shape, and light characteristics [ref. a]
- b. Sound characteristics associated with each system [ref. a]
- c. The top mark characteristics [ref. a]
- d. How the phrase red right returning is applied to the buoy system [ref. b, ch. 4]
- e. How the color of the buoy aids in determining its function [ref. b, ch. 4]
- f. How the light characteristics of the buoy aids in determining its function [ref. b, ch. 4]

---

(Signature and Date)

.2 Discuss how and where the following are used: [ref. a]

- a. Port hand buoy
- b. Starboard hand buoy
- c. Mid-channel buoy
- d. Junction/obstruction buoy
- e. Special-purpose buoy
- f. Quarantine anchorage buoy
- g. Anchorage buoy
- h. Fishnet buoy
- i. Dredge buoy
- j. Day beacons
- k. Cardinal marks

---

(Signature and Date)

## 161 COMBAT SYSTEMS OPERATIONAL SEQUENCING SYSTEM (CSOSS) FUNDAMENTALS

References:

[a] Combat Systems Operational Sequencing System (CSOSS) User's Manual

---

161.1 Explain the purpose of CSOSS. [sec. 1]

\_\_\_\_\_  
(Signature and Date)

.2 Describe how CSOSS manuals are organized. [sec. 1]

\_\_\_\_\_  
(Signature and Date)

.3 List the basic components of CSOSS, and discuss the purpose, content, and document responsibility. [sec. 3]

\_\_\_\_\_  
(Signature and Date)

.4 Define the following terms: [sec. 2]

- a. Configuration
- b. Casualty control
- c. Autonomous action
- d. Controlling actions

\_\_\_\_\_  
(Signature and Date)

.5 Describe the combat systems casualty control organization for Conditions I, II, III, IV, and in-port. [sec. 2]

\_\_\_\_\_  
(Signature and Date)



## 162 POLLUTION CONTROL FUNDAMENTALS

### References:

- [a] NSTM S9086-WK-STM-010/CH-670, Stowage, Handling, and Disposal of Hazardous General Use Consumables
  - [b] OPNAVINST 5090.1B (Change 4), Environmental and Natural Resources Program Manual
  - [c] OPNAVINST 5100.19D (Change 1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
  - [d] NSTM S9086-T8-STM-010/CH-593 (Rev. 4), Pollution Control
  - [e] Oil Spills Inport Prevention Video, Pin Number 806628
- 

162.1 Define the following: [ref. a, sec. 1]

- a. HAZMAT
- b. Hazardous waste

\_\_\_\_\_  
(Signature and Date)

.2 Define the following: [ref. b, ch. 19]

- a. Oily waste
- b. Waste oil

\_\_\_\_\_  
(Signature and Date)

.3 Discuss the legislation that governs the discharge of oily waste into the ocean.  
[ref. b, ch. 9]

\_\_\_\_\_  
(Signature and Date)

.4 Describe the actions required for oil spills within the U.S. contiguous zone.  
[ref. b, ch. 19]

\_\_\_\_\_  
(Signature and Date)

.5 Describe the actions required for oil spills outside the U.S. contiguous zone.  
[ref. b, ch. 19]

\_\_\_\_\_  
(Signature and Date)

## 162 POLLUTION CONTROL FUNDAMENTALS (CONT'D)

- 162.6 Explain the general operational and management requirements for bilge water, oil, oily waste, and shipboard pollution abatement. [ref. b, ch. 19; ref. d, sec. 3]

---

(Signature and Date)

- .7 Discuss the following discharge limitations: [ref. b, ch. 19]

- a. CHT
- b. Gray water
- c. Solid waste
- d. Plastics

---

(Signature and Date)

- .8 Discuss the oily waste discharge limitations in geographic zones and waters other than those of the U.S. [ref. b, ch. 19]

---

(Signature and Date)

- .9 Define and discuss data found on an MSDS. [ref. c, ch. B-3, Glossary G]

---

(Signature and Date)

- .10 Discuss Work Center Supervisor responsibilities as they pertain to HMC&M. [ref. c, ch. B-3]

---

(Signature and Date)

- .11 Discuss all hands responsibilities as they pertain to HMC&M. [ref. c, ch. B-3]

---

(Signature and Date)

- .12 Discuss proper stowage procedures for HMC&M. [ref. c, ch. B-3]

---

(Signature and Date)

- .13 Discuss proper marking of HM containers. [ref. c, ch. B-3]

---

(Signature and Date)

## **162 POLLUTION CONTROL FUNDAMENTALS (CONT'D)**

162.14 Discuss flammable material stowage requirements. [ref. a, sec. 4; ref. c, ch. C-23]

---

(Signature and Date)

.15 Discuss the precautions observed when handling flammables. [ref. c, ch. C-23]

---

(Signature and Date)

.16 State the location and contents of the oil spill containment kit. [ref. b, ch. 19]

---

(Signature and Date)

.17 Describe required sub-tasks within each of the five ORM elements for conducting petroleum product evolutions (internal transfers, onloads, offloads): [ref. b, ch. 19]

- a. Identifying hazards
- b. Assessing hazards
- c. Making risk decisions
- d. Implementing controls
- e. Supervising

---

(Signature and Date)

.18 Discuss the information provided in the oil spills in-port prevention video. [ref. e]

---

(Signature and Date)

**163 MARINE MAMMAL PROTECTION FUNDAMENTALS**

## References:

- [a] OPNAVINST 5090.1B (Change 4), Environmental and Natural Resources Program Manual
- [b] OPNAVINST 3100.6G, Special Incident Reporting
- 

163.1 Discuss the Navy's policy with regards to marine mammal protection particularly the PMAP. [ref. a, ch. 22]

\_\_\_\_\_  
(Signature and Date)

.2 Define the term taking with regard to marine mammals. [ref. a, ch. 22]

\_\_\_\_\_  
(Signature and Date)

.3 Discuss the reporting requirements in the event of a whale strike or marine mammal take. [ref. a, ch. 19-11; ref. b, ch. 1]

\_\_\_\_\_  
(Signature and Date)

.4 Describe the role of lookouts in the protection of marine mammals. [ref. a, ch. 19]

\_\_\_\_\_  
(Signature and Date)

**164 MINOR CALIBER WEAPONS FUNDAMENTALS**

## References:

- [a] Navy Tactical Reference Publication (NTRP) 3-07.2.2, Force Protection Weapons Handling Standard Procedures and Guidelines
- 

164.1 Discuss the following shipboard weapons to include caliber, effective range, mount location, and the threat each is most effective against:

- a. 9MM pistol
- b. 12-gauge shotgun
- c. M-14 rifle
- d. M-16 rifle
- e. M-60 machine gun
- f. 50-caliber machine gun
- g. M-240 machine gun
- h. MK 44 machine gun
- i. MK 38 25MM machine gun
- j. M-79 grenade launcher
- k. M-203 grenade launcher
- l. MK 19 grenade machine gun
- m. MK 3A2 concussion grenade

---

(Signature and Date)

.2 Discuss the procedures for transitioning through all conditions of readiness for each of the weapons listed above.

---

(Signature and Date)

.3 Discuss the watch turnover procedures for each of the weapons listed above.

---

(Signature and Date)



## 200 INTRODUCTION TO SYSTEMS

### 200.1 BASIC BUILDING BLOCKS

In this section, the equipment is broken down into smaller, more comprehensible, functional systems as basic building blocks in the learning process. Each system is written to reflect specific watchstation requirements by identifying the equipment most relevant to one or more designated watchstanders. The less complex systems may be identified and covered quickly or relegated to a lower priority to permit greater emphasis on more significant or complex systems.

### 200.2 COMPONENTS AND COMPONENT PARTS

For learning purposes each system is disassembled into two levels. Systems have components and components have parts. Do not expect to see every item which appears on a parts list to be in the PQS. Only those items which must be understood for operation/maintenance are listed. Normally a number of very broad (overview) systems are disassembled into their components or parts with the big picture as the learning goal. Items listed as components in such a system may then be analyzed as separate systems and broken down into components and parts. Example: the turbogenerators may be listed as a component of the Ship's Service Electrical Distribution system and then later detailed as an individual system for closer study.

### 200.3 FORMAT

Each system is organized within the following format:

- It lists the references to be used for study and asks you to explain the function of each system.
- It asks for the static facts of what or where the components and component parts are in relation to the system.
- It directs attention to the dynamics of how the component and component parts operate to make the system function.
- It specifies the parameters that must be immediately recalled.
- It requires study of the relationship between the system being studied and other systems or areas.

### 200.4 HOW TO COMPLETE

The systems you must complete are listed in the Prerequisites section of each watchstation. When you have mastered one or more systems, contact your Qualifier. The Qualifier will give you an oral examination on each system and, if satisfied you have sufficient knowledge of the system, will sign the appropriate system line items. You will be expected to demonstrate through oral or written examination a thorough understanding of each system required for your watchstation.





## 201 RADAR EQUIPMENT SYSTEM

### References:

- [a] NAVEDTRA 14204, Operations Specialist 3
  - [b] NWP 3-20.6 (Series), Ship's Class Tactical Manual
  - [c] Manufacturer's Technical Manual
  - [d] Combat Systems Operational Sequencing System (CSOSS) User's Manual
- 

### 201.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. Where is it located?
- C. What are the sources of power?
- D. What are the modes of operation or control?
- E. What are the safety/protective devices for this component/component part?
- F. What are the probable indications if this component fails?
- G. What is the effect on system operation if this component fails?
- H. What is the function of each position?

|         |  | <u>Questions</u> |
|---------|--|------------------|
| 201.1.1 | Radars [ref. a, ch. 5; ref. b]         | A B              |
|         | a. Modulator                           | A B E F G        |
|         | b. Transmitter                         | A B C D E F G    |
|         | c. Antenna assemblies                  | A B C E F G      |
|         | d. Receiver                            | A B C D E F G    |
|         | e. Indicator                           | A B D E F G      |
|         | f. Power supply unit                   | A B C E F G      |
| .2      | Radar repeater [ref. a, ch. 6; ref. b] | A B              |
|         | a. Intensity control knob              | A B F            |
|         | b. Video gain control knob             | A B F            |
|         | c. Focus control knob                  | A B F            |
|         | d. Auxiliary intensity control knobs   | A B F            |
|         | e. Range scale control knob            | A B D F H        |
|         | f. Range ring selector switch          | A B F H          |
|         | g. Illumination control knobs          | A B F            |
|         | h. Main power switch                   | A B D G          |
|         | i. Remote power switch                 | A B D H          |
|         | j. Range strobe control knob           | A B F            |
|         | k. Bearing cursor control knob         | A B F            |
|         | l. Off-center control knob             | A B D G          |

## 201 RADAR EQUIPMENT SYSTEM (CONT'D)

|         |  | <u>Questions</u> |
|---------|--|------------------|
| 201.1.3 | IFF equipment [ref. a, ch. 7; ref. b]      | A B              |
|         | a. Interrogator (master and remote)        | A B C D F G H    |
|         | b. Transponder (master and remote)         | A B C G H        |
|         | c. Responder                               | A B G H          |
| .4      | Radar control unit [ref. a, ch. 5; ref. b] | A B              |
|         | a. STC controls                            | A B D F G H      |
|         | b. Antijam controls                        | A B D E F G H    |
|         | c. Pulse selection switch                  | A B G H          |
|         | d. Pulse repetition rate control knob      | A B G H          |
|         | e. Main power switch                       | A B C            |
|         | f. MTI controls                            | A B D F G H      |
|         | g. Remote power switch                     | A B D G          |
| .5      | ARPA [ref. c]                              | A B              |

---

(Signature and Date)

### 201.2 PRINCIPLES OF OPERATION

- 201.2.1 How do the components work together to achieve the system's function?  
[ref. a, ch. 5]
- .2 Draw a block diagram of this system. [ref. a, ch. 5]

---

(Signature and Date)

### 201.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions:

- A. What is the maximum range?  
B. What is the minimum range?  
C. What is the maximum effective range?  
D. List the detection capabilities and uses.

|         |                           | <u>Questions</u> |
|---------|---------------------------|------------------|
| 201.3.1 | AN/SPS-55 [ref. a, ch. 5] | A B C D          |
| .2      | AN/SPS-64 [ref. a, ch. 5] | A B C D          |
| .3      | AN/SPS-67 [ref. a, ch. 5] | A B C D          |
| .4      | AN/SPS-73 [ref. a, ch. 5] | A B C D          |
| .5      | AN/SPS-40 [ref. a, ch. 5] | A B C D          |
| .6      | AN/SPS-49 [ref. a, ch. 5] | A B C D          |
| .7      | AN/SPS-48 [ref. a, ch. 5] | A B C D          |
| .8      | AN/SPY-1 [ref. a, ch. 5]  | A B C D          |
| .9      | MK-23 TAS [ref. a, ch. 5] | A B C D          |

## 201 RADAR EQUIPMENT SYSTEM (CONT'D)

### Questions

- 201.3.10 AN/SPQ-9 [ref. a, ch. 5]  
.11 Commercial radar [ref. c]

A B C D  
A B C D

---

(Signature and Date)

### 201.4 SYSTEM INTERFACE

- 201.4.1 How do the following outside influences affect the operation of this system:

- a. Loss of chill water [ref. b]
- b. Loss of 60/400 Hz power [ref. b]
- c. Variations in environmental/weather conditions [ref. a, ch. 5]
- d. Loss of dry air [refs. c, d]

- .2 How does this system interface with the following:

- a. Combat systems [ref. b]
- b. VMS [ref. c]
- c. Situational awareness system [ref. c]

---

(Signature and Date)

### 201.5 SAFETY PRECAUTIONS

- 201.5.1 What special safety precautions apply to: [ref. a, ch. 5]

- a. Antenna maintenance
- b. Electronic maintenance
- c. Operations
- d. Man aloft

---

(Signature and Date)

## 202 NAVAL TACTICAL DATA SYSTEM (NTDS)

### References:

- [a] NAVEDTRA 14203, Operations Specialist 2
  - [b] Ship's Information Book (SIB)
  - [c] NWP 3-20.6 (Series), Ship's Class Tactical Manual
  - [d] OPNAVINST 5100.19D (Change 1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
  - [e] NAVEDTRA 14204, Operations Specialist 3
  - [f] Combat Systems Operational Sequencing System (CSOSS) User's Manual
  - [g] NAVEDTRA 14000, Fire Controlman, Vol. 3
- 

### 202.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. Where is it located?
- C. What are the sources of power?
- D. What are the modes of operation or control?
- E. What are the probable indications if this component fails?
- F. What is the effect on system operation if this component fails?
- G. What is the function of each position?
- H. How does this component interface with the total NTDS?

#### Questions

- |         |   |                 |
|---------|---|-----------------|
| 202.1.1 | NTDS [ref. e, ch. 1]  | A               |
| .2      | Computer group [ref. a, ch. 8; ref. b]                                  | A B C D E F G H |
| .3      | Operational program [ref. a, ch. 8; ref. b]                             | A B D E F H     |
| .4      | Sensor inputs (radar/IFF/sonar/EW) [ref. a, ch.8]                       | A D E F H       |
| .5      | Ship's parameter inputs (SINS/gyro/EM log/anemometer)<br>[ref. a, ch.8] | A D E F H       |
| .6      | Signal conversion equipment [ref. a, ch. 8; ref. b]                     | A B C D E F H   |
| .7      | System monitoring unit (SMP/EQCC/SMS/CDLMS)<br>[refs. a, ch.8; b, f]    | A B C D E F H   |
| .8      | Data utilization/input consoles [ref. a, ch. 8; ref. b]                 | A B C D E F G H |
| .9      | Universal keyset [ref. a, ch. 8; ref. b]                                | A B E F H       |
| .10     | Data transmission group [ref. a, ch. 8; ref. b]                         | A B C D E F H   |
| .11     | BVP [ref. a, ch. 8; ref. b]   | A B C D E F G H |
| .12     | Auto detector tracker [ref. a, ch. 8; ref. b]                           | A B C D E F G H |

## 202 NAVAL TACTICAL DATA SYSTEM (NTDS) (CONT'D)

**Questions**  
A B D F G H

202.1.13 POFA [ref. a, ch. 8; ref. b]

---

(Signature and Date)

### 202.2 PRINCIPLES OF OPERATION

202.2.1 How do the components work together to achieve the system's function?  
[ref. a, ch. 8]

.2 Draw a diagram of this system. [ref. g, ch. 1]

.3 What is the sequence of component involvement to: [ref. c]

- a. DTE a sequence for an air contact
- b. DTE a surface contact
- c. DTE a subsurface contact

.4 What indications are received if the system is malfunctioning? [ref. f]

---

(Signature and Date)

202.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

### 202.4 SYSTEM INTERFACE

202.4.1 How does this system interface with shipboard weapons systems? [ref. c]

---

(Signature and Date)

### 202.5 SAFETY PRECAUTIONS

202.5.1 What safety precautions must be observed when operating this system?  
[ref. d, ch. C9]

---

(Signature and Date)

## 203 NAVAL COMMUNICATIONS SYSTEM

### References:

- [a] NAVEDTRA 14189, NEETS Module 17--Radio Frequency Communications Principles
  - [b] NAVMACS II System SOP
  - [c] NWP 3-20.6 (Series), Ship's Class Tactical Manual
  - [d] Ship's Information Book (SIB)
  - [e] NAVEDTRA 14204, Operations Specialist 3
  - [f] INMARSAT (B)/High Speed Data (HSD) IT21 User's Handbook
- 

### 203.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. Where is it located?
- C. What are the sources of power?
- D. What are the modes of operation or control?
- E. What are the probable indications if this component fails?
- F. What is the effect on system operation if this component fails?
- G. What is the function of each position?

203.1.1 Naval communications system [ref. a, ch. 1]

.2 Radiotelephone speakers and amplifier control units (bridge & CIC) [ref. e, ch. 3]

.3 Radio set control unit [ref. c; ref. e, ch. 3]

a. Volume control knob [ref. e, ch. 3]

b. Operational light [ref. e, ch. 3]

c. Key light [ref. e, ch. 3]

d. Handset connection [ref. e, ch. 3]

.4 Remote control/indicator unit [ref. c]

a. Dial-type channel selector

b. Channel indicator dial

c. Operation light

.5 CIC communications patch panels [ref. c]

### Questions

A

A B D E F

A B D E F

A B

A B

A B

A B

A B D E F

A B G

A B

A B

A B C D E F

## 203 NAVAL COMMUNICATIONS SYSTEM (CONT'D)

### Questions

|         |  |               |
|---------|--|---------------|
| 203.1.6 | Secure voice communications control units<br>[ref. c; ref. f, chs. 7, 8] | A B D E F     |
| .7      | SAS [ref. a, Glossary]   | A B C D E F   |
| .8      | Antennas [ref. a, ch. 3]   | A B D E F     |
|         | a. Omnidirectional [ref. a, ch. 3; ref. c]                               | A B           |
|         | b. Directional [ref. a, ch. 3; ref. c]                                   | A B           |
|         | c. Unidirectional [ref. a, ch. 3]  | A B           |
| .9      | Coupler/multicoupler [ref. a, ch. 3]                                     | A B E F       |
| .10     | Receiver/transmitter [ref. a, chs. 1, 2]                                 | A B C D E F   |
| .11     | NAVMACS II [ref. a, ch. 10; refs. b, c]                                  | A B E F       |
| .12     | Teletype/teleprinter [ref. a, chs. 9, 10]                                | A B E F       |
| .13     | Gateguard [ref. a, chs. 9, 10]   | A B C D E F G |
| .14     | InMARSAT [ref. f]  | A B C D E F G |
| .15     | ADNS [ref. a, ch. 4; ref. f]   | A B C D E F G |
| .16     | VHF [ref. a, ch. 1]  | A B C D E F G |
| .17     | EHF [ref. h]   | A B C D E F G |
| .18     | SHF [ref. i]   | A B C D E F G |
| .19     | Commercial wideband satellite system [ref. j]                            | A B C D E F G |

---

(Signature and Date)

### 203.2 PRINCIPLES OF OPERATION

- 203.3.1 How do the components work together to achieve the system's function? [ref. c]
- .2 Draw a block diagram of this system. [ref. a, ch. 1]
- .3 Using a diagram of the system, show the path of: [ref. a, ch. 1]
- Voice message from antenna to handset
  - Voice message from handset to antenna
  - Hardcopy message from antenna to keyboard
  - Hardcopy message from keyboard to antenna
  - E-mail message from antenna to keyboard
  - E-mail message from keyboard to antenna

---

(Signature and Date)

## **203      NAVAL COMMUNICATIONS SYSTEM (CONT'D)**

203.3      PARAMETERS/OPERATING LIMITS – None to be discussed.

### 203.4      SYSTEM INTERFACE

203.4.1    How do the following outside influences affect the operation of this system:  
[ref. a, ch. 5]

- a.      Variations in atmospheric conditions
- b.      Variations in ship's geographic position

.2      How does this system interface with the cryptographic equipment?  
[ref. b, ch. 7; ref. d]

---

(Signature and Date)

### 203.5      SAFETY PRECAUTIONS

203.5.1    What safety precautions must be observed when operating this system?  
[ref. b, ch. 7]

---

(Signature and Date)



## 204 NAVAL GUN SYSTEM

### References:

- [a] NAVEDTRA 14324, Gunner's Mate
  - [b] Ship's Information Book (SIB)
  - [c] NWP 1-11.01 (Rev. A), Characteristics and Capabilities of U.S. Navy Combatant Ships
  - [d] NAVSEA OP 3347 (Rev. 2, Change 13), U.S. Navy Ordnance Safety Precautions
  - [e] NAVSEA SW300-BC-SAF-010, Clearing of Live Ammunition From Guns
- 

### 204.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. Where is it located?
- C. What is the effect on system operation if this component fails?

#### Questions

- |         |  |       |
|---------|--|-------|
| 204.1.1 | Naval gun system [ref. a, ch. 6]                       | A     |
| .2      | Training circle [ref. a, ch. 6]                        | A B C |
| .3      | Barrel (breech, chamber, bore, muzzle) [ref. a, ch. 6] | A B C |
| .4      | Firing mechanisms [ref. a, ch. 6]                      | A B C |
| .5      | Recoil/counter-recoil system [ref. a, ch. 6]           | A B C |
| .6      | Ammunition transfer system [ref. a, ch. 6]             | A B C |
| .7      | Gas ejection system [ref. a, ch. 6]                    | A B C |
| .8      | Cease fire alarm [ref. a, ch. 8; ref. b]               | A B C |
| .9      | Salvo alarm [ref. a, ch. 6; ref. b]                    | A B C |
| .10     | Firing cutout cams [ref. a, chs. 4, 6, 11]             | A B C |

---

(Signature and Date)

### 204.2 PRINCIPLES OF OPERATION

- 204.2.1 How do the components work together to achieve the system's function?  
[ref. a, ch. 6]
- .2 Using a diagram of the system, show the path of ammunition from the magazine to the barrel. [ref. a, ch. 6]

---

(Signature and Date)

## 204 NAVAL GUN SYSTEM (CONT'D)

### 204.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions:

- A. What is the rate of fire (maximum/sustained)?
- B. What is the maximum/minimum range?
- C. What is the maximum effective range?
- D. What is the number of ready service rounds available?

#### **Questions**

- |         |  |         |
|---------|--|---------|
| 204.3.1 | 5"/54 MK 45 [ref. c, app. B]                 | A B C D |
| .2      | 76 mm/62 MK 75 [ref. c, app. B]              | A B C D |
| .3      | 20 mm vulcan phalanx (CIWS) [ref. c, app. B] | A B C D |
| .4      | 5"/62 MK-45 [ref. c, app. B]                 | A B C D |

---

(Signature and Date)

### 204.4 SYSTEM INTERFACE

- 204.5.1 How does the loss of electrical power affect the operation of this system?  
[ref. a, ch. 5]
- .2 How does this system interface with fire control systems? [ref. a, ch. 10]

---

(Signature and Date)

### 204.5 SAFETY PRECAUTIONS

- 204.5.1 What special safety precautions apply to:
  - a. Gun exercise prefire requirements [ref. a, ch. 6; ref. d, ch. 2]
  - b. Hot gun procedures/misfire - hangfire [ref. a, ch. 5; ref. e, ch. 3]
  - c. Train circle [ref. d, ch. 1]
  - d. Train warning bell [ref. d, ch. 2]
  - e. Check sight [ref. d, ch. 1]
  - f. Firing cutout cams [ref. d, ch. 1]
  - g. Salvo alarm [ref. a, ch. 12; ref. b]
  - h. Cease fire alarm [ref. e, ch. 3]
  - i. Ammunition handling [ref. a, ch. 2; ref. d, ch. 2; ref. e, ch. 3]

---

(Signature and Date)

## 205 GUN AND MISSILE FIRE CONTROL SYSTEM

### References:

- [a] NAVEDTRA 14324, Gunner's Mate
  - [b] Jane's Fighting Ships, 1995-96 (98<sup>th</sup> Edition)
  - [c] NAVEDTRA 14099A, Fire Controlman, Vol. 02-Fire Control Systems and Radar Fundamentals
  - [d] Ship's Combat Systems Doctrine (Class Specific)
  - [e] Ship's Information Book (SIB)
  - [f] NWP 3-01.01, Anti-air Warfare
  - [g] NAVSEA OP 3347 (Rev. 2, Change 13), U.S. Navy Ordnance Safety Precautions
  - [h] NWP 65-0-1, Characteristics and Capabilities of U.S. Navy Combatant Ships
- 

### 205.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. Where is it located?
- C. What is the effect on system operation if this component fails?
- D. What are the major components of the systems?

### Questions

- |         |   |         |
|---------|---|---------|
| 205.1.1 | Gun and missile FCS [ref. a, ch. 5]             | A       |
| .2      | MK 15 CIWS [ref. c, ch. 3]                      | A B C D |
| .3      | MK 86 GFCS [ref. h, app. B]                     | A B C D |
| .4      | MK 92 FCS [ref. f, ch. 3]                       | A B C D |
| .5      | MK 99 GMFCS [ref. h, app. B]                    | A B C D |
| .6      | MK 91 GMFCS [ref. h, app. B]                    | A B C D |
| .7      | MK 34 FCS [refs. d, e]                          | A B C D |
| .8      | Director [ref. a, ch. 9; ref. e]                | A B C D |
| .9      | Computer [ref. a, ch. 9; ref. e]                | A B C D |
| .10     | Stable element [ref. a, ch. 9; ref. e]          | A B C D |
| .11     | Radar console [ref. a, ch. 9; ref. e]           | A B C D |
| .12     | Target designation systems/NTDS [ref. a, ch. 9] | A B C D |
| .13     | Weapons control stations [ref. b, ch. 9]        | A B C D |
| .14     | Television optical system/ROS [ref. a, ch. 7]   | A B C D |

---

(Signature and Date)

## **205 GUN AND MISSILE FIRE CONTROL SYSTEM (CONT'D)**

### **205.2 PRINCIPLES OF OPERATION**

- 205.2.1 How do the components work together to achieve the system's function?  
[ref. a, ch. 9]
- .2 Draw a diagram of this system. [ref. a, ch. 9]
- .3 What is the sequence of component involvement to accomplish target detection, designation, and engagement? [ref. d]

---

(Signature and Date)

### **205.3 PARAMETERS/OPERATING LIMITS**

- 205.3.1 What is the acquisition range of the gun and missile fire control systems?  
[ref. f, app. B]

---

(Signature and Date)

### **205.4 SYSTEM INTERFACE**

- 205.4.1 How do the FCS's listed in 205.1.2 through 205.1.7 interface with the following:  
[ref. d]
- a. Gun system
- b. Missile system

---

(Signature and Date)

### **205.5 SAFETY PRECAUTIONS**

- 205.5.1 What safety precautions must be observed when operating this system?  
[ref. a, ch. 10; ref. g]

---

(Signature and Date)

## 206 NAVAL MISSILE SYSTEM

### References:

- [a] NWP 3-01.01, Antiair Warfare
  - [b] NTTP 3-03.1E, Tomahawk Land Attack Missile (TLAM C/D) Employment Manual
  - [c] NTTP 3-20.71A, Surface Ship Harpoon Employment Manual
  - [d] NAVSEA OP 3347 (Rev. 2, Change 13), U.S. Navy Ordnance Safety Precautions
  - [e] NAVEDTRA 14324, Gunner's Mate
  - [f] NAVEDTRA 14109, Gunner's Mate M 3 & 2
  - [g] NWP 3-03.2C, Tomahawk Land Attack Missile (TLAM) Launch Platform and Weapons Systems Tactics, UC-1
  - [h] Ship's Combat Systems Doctrine (Class Specific)
- 

### 206.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each: [ref. e, ch. 7]

- A. What is its function?
- B. Where is it located?
- C. What is the effect on system operation if this component fails?
- D. What is the source of control signals?

### Questions

- |         |                      |         |
|---------|----------------------|---------|
| 206.1.1 | Naval missile system | A       |
| .2      | Warhead section      | A B     |
| .3      | Propulsion section   | A B C   |
| .4      | Control section      | A B C D |
| .5      | Guidance section     | A B C D |

---

(Signature and Date)

### 206.2 PRINCIPLES OF OPERATION

- 206.2.1 How do the components work together to achieve the system's function?  
[ref. e, ch. 1]

---

(Signature and Date)

## 206 NAVAL MISSILE SYSTEM (CONT'D)

### 206.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions:

- A. What is the minimum and maximum range?
- B. What type of guidance/FCS is employed?
- C. What is its antisurface capability?
- D. What is the low-flyer/ASMD capability?
- E. What type of warhead(s) is (are) carried?
- F. What is the speed of this missile?
- G. What is the associated flight profile?
- H. What is (are) the associated launching system(s)?

#### Questions

- |         |   |                 |
|---------|---|-----------------|
| 206.3.1 | RAM [ref. a, ch. 3]                                 | A B C D E F H   |
| .2      | Standard missile [ref. a, ch. 3]                    | A B C D E F H   |
| .3      | Sea sparrow [ref. a, ch. 3]                         | A B C D E F H   |
| .4      | Stinger [ref. a, ch. 7]                             | A B C D E F G H |
| .5      | Harpoon [ref. c, app. B]                            | A B C D E F G H |
| .6      | Tomahawk missile [ref. b, chs. 2, 4 thru 6; ref. g] | A B C D E F G H |

---

(Signature and Date)

### 206.4 SYSTEM INTERFACE

- 206.4.1 How do environmental conditions affect the operation of this system? [ref. e, ch. 7]
- .2 How does this system interface with the following: [ref. f, ch. 9]
- a. NTDS
  - b. WDS/WCS
  - c. SSDS

---

(Signature and Date)

## **206      NAVAL MISSILE SYSTEM (CONT'D)**

### **206.5      SAFETY PRECAUTIONS**

**206.5.1      What special safety precautions apply to:**

- a.      Missile firing, including self-destruct procedures [ref. e, ch. 6]
- b.      Missile dud procedures [ref. e, ch. 4]
- c.      Launcher training circle [ref. e, ch. 14]
- d.      Launcher training bell [ref. e, ch. 6]
- e.      HERO restrictions [ref. e, ch. 1]
- f.      Booster drop zone [ref. h]
- g.      Booster exhaust [ref. h]
- h.      Safety corridors for friendly aircraft when firing missiles  
[ref. a, app. A; ref. d, app. A]

---

(Signature and Date)

## 207 SURFACE SHIP SONAR SYSTEM

### References:

- [a] NAVEDTRA 14309, Integrated Undersea Surveillance Systems Operations
  - [b] NWP 61, Surface Ship Antisubmarine Warfare (ASW) Principles
  - [c] Ship's Class Tactical Manual
  - [d] NTTP 3-15.21, Surface Mine Countermeasures Operations (SMCM)
  - [e] NWP 3-15.5, Organic Mine Countermeasures (OMCM)
  - [f] NWP 3-15.22, AMCM Operations
  - [g] Navywide OPTASK ASW
  - [h] Manufacturer's Technical Manual
- 

### 207.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. What are the modes of operation or control?
- C. What are the characteristics of this component?
- D. What are the capabilities of this component?

|         |  | <u>Questions</u> |
|---------|--|------------------|
| 207.1.1 | Surface ship sonar [ref. a, ch. 13]    | A                |
| .2      | Hull mounted sonars [ref. b, app. B]   | A                |
|         | a. AN/SQS-53                           | A B C D          |
|         | b. AN/SQS-56                           | A B C D          |
| .3      | Towed array sonars [ref. b, app. B]    | A                |
|         | a. AN/SQR-19                           | A B C D          |
| .4      | Narrowband processors [ref. b, app. B] | A                |
|         | a. AN/SQR-17                           | A D              |
|         | b. AN/SQQ-28                           | A D              |
| .5      | AN/SQQ-89 [ref. b, app. B]             | A C D            |
| .6      | Sonar auxiliaries:                     |                  |
|         | a. SIMAS II [ref. b, app. B]           | A                |
|         | b. XBT [ref. a, ch. 2]                 | A                |
|         | c. Sonobuoys [ref. a, ch. 4]           | A                |
|         | d. AN/SQR-4 data links [ref. b, ch. 4] | A                |
|         | e. AN/SLQ-25 NIXIE [ref. a, ch. 2]     | A B              |
|         | f. WECAN [ref. g]                      | A D              |
|         | g. PC IMAT [ref. h]                    | A D              |



## 207 SURFACE SHIP SONAR SYSTEM (CONT'D)

### Questions

- 207.1.7 Minehunting/avoidance sonar:
- |    |                           |         |
|----|---------------------------|---------|
| a. | AN/SQQ-32(V) VDS [ref. d] | A B C D |
| b. | AN/AQS-14 [ref. e]        | A B C D |
| c. | AN/AQS-20 [ref. f]        | A B C D |
| d. | Kingfisher [ref. c]       | A B C D |

---

(Signature and Date)

### 207.2 PRINCIPLES OF OPERATION

- 207.2.1 How are the various components integrated in the AN/SQQ-89 system?  
[ref. b, app. B]

---

(Signature and Date)

### 207.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions:

- A. What speeds are required to launch and retrieve the towed array?  
B. What is the maximum operating speed?  
C. What is the maximum tow depth?  
D. What is the maximum tow cable length?

### Questions

- |         |  |         |
|---------|--|---------|
| 207.3.1 | AN/SQS-53 [ref. b, app. B]                     | B       |
| .2      | AN/SQS-56 [ref. b, app. B]                     | B       |
| .3      | AN/SQR-19 [ref. b, app. B]                     | A B C D |
| .4      | AN/SQQ-32(V) [ref. e]                          | A B C   |
| .5      | AN/AQS-20 (remote minehunting system) [ref. f] | A B C D |

---

(Signature and Date)

### 207.4 SYSTEM INTERFACE

- 207.4.1 Discuss the deployment of these systems in the TF. [ref. b, ch. 6]

---

(Signature and Date)

## **207 SURFACE SHIP SONAR SYSTEM (CONT'D)**

### **207.5 SAFETY PRECAUTIONS**

207.5.1 What special safety precautions apply to: [ref. c]

- a. The SDRW pressurization system
- b. Diving operations
- c. Streaming a towed body or array

.2 What maneuvering restrictions apply while towed body or array is being towed or is deployed? [ref. c]

---

(Signature and Date)

## 208 SURFACE SHIP ANTISUBMARINE WARFARE (ASW) WEAPONS SYSTEM

### References:

- [a] COMSURFWARDEVGRU TACMGMO TM 3-21.2-98, Attack and Evasion Tactics Manual
  - [b] NAVSEA SW394-AF-MMO-030, Functional Introduction into VLS
  - [c] Ship's Class Tactical Manual
  - [d] NAVSEA S6340-AA-MMA-010 (Rev. 2), Otto Fuel II, Safety, Stowage, and Handling Instruction
  - [e] OPNAVINST 5100.19D (Change 1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
  - [f] Manufacturer's Technical Manual
  - [g] SW181-A7-OPI-010, MK 116, Mod 7
  - [h] SW180-A4-OPI-010, MK 116, Mod 4
  - [i] NAVSEA OP 4407, MK 309
- 

### 208.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. What are the modes of operation or control?
- C. What are the characteristics of this component?
- D. What are the capabilities of this component?

### Questions

- |         |   |         |
|---------|---|---------|
| 208.1.1 | Surface ship ASW weapons system [ref. a, chs. 1, 2] | A       |
| .2      | MK 46 torpedo [ref. a, chs. 1, 2]                   | A B C D |
| .3      | MK 50 torpedo [ref. a, chs. 1, 2]                   | A B C D |
| .4      | MK 116 UBFCFS [refs. g, h]                          | A B     |
| .5      | MK 309 fire control panel [ref. i]                  | A B     |
| .6      | MK 41 VLS [ref. b, secs. 1 thru 4]                  | A       |
| .7      | MK 32 SVTT [ref. a, chs. 1, 2]                      | A       |
| .8      | VLA [ref. a, chs. 1, 2]                             | A B C D |

---

(Signature and Date)

## **208 SURFACE SHIP ANTISUBMARINE WARFARE (ASW) WEAPONS SYSTEM (CONT'D)**

### **208.2 PRINCIPLES OF OPERATION**

208.2.1 How do the components work together to achieve the system's function? [ref. c]

---

(Signature and Date)

### **208.3 PARAMETERS/OPERATING LIMITS**

For the items listed, answer the following questions: [ref. a, chs. 1, 2]

- A. What types of propulsion are used?
- B. What are the weapon's speed capabilities?
- C. What are the minimum and maximum search and attack depth settings?
- D. What is the method of homing?
- E. What is the acquisition range?
- F. What are the minimum and maximum effective firing ranges?
- G. What are the run characteristics?

- 208.3.1 MK 46 torpedo (surface launch)  
.2 MK 46 torpedo (VLS)  
.3 MK 46 torpedo (air launch)  
.4 MK 50 torpedo

**Questions**  
A B C D E F G  
A B C D E F G  
A B C D E F G  
A B C D E F G

---

(Signature and Date)

### **208.4 SYSTEM INTERFACE**

- 208.4.1 How does this system interface with the CDS and WCS? [refs. c, f]
- .2 How are assignments and target designation information processed from the sensor to the weapon? [ref. c]

---

(Signature and Date)

**208      SURFACE SHIP ANTISUBMARINE WARFARE (ASW) WEAPONS SYSTEM  
(CONT'D)**

208.5      SAFETY PRECAUTIONS

208.5.1    What special safety precautions apply to:

- a.      Otto fuel [ref. d, ch. 1-5]
- b.      HP air [ref. e, ch. C23]
- c.      Lithium [ref. e, ch. C9]

---

(Signature and Date)

209 INFORMATION WARFARE (IW) SYSTEMS

References:

[a] NWP 3-13.1.13, Electronic Warfare Coordination  
[b] NAVEDTRA 14096, Electronics Warfare Technician 3 & 2  
[c] Ship's Combat Systems Doctrine (Class Specific)  
[d] OPNAVINST 5100.19D (Change 1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat  
[e] NAVEDTRA 14095, Electronics Warfare Technician 1 & C  
[f] NWP 1-11.01 (Rev. A), Characteristics and Capabilities of U.S. Navy Combatant Ships  
[g] NTTP 3-13.2, Naval Information Warfare Commanders Manual

---

209.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. Where is it located?

|   | <u>Questions</u> |
|---|------------------|
| 209.1.1 IW systems [ref. g, app. D]                         | A                |
| .2 AN/SLQ-32 [ref. e, ch. 3; ref. g, app. D]                | A B              |
| .3 AN/SSQ-72 outboard [ref. f, app. B]                      | A B              |
| .4 AN/SRS-1, combat DF [ref. f, app. B]                     | A B              |
| .5 AN/SLQ-17 [ref. a, app. E; ref. e, ch. 3]                | A B              |
| .6 AN/ALQ-142 [ref. e, ch. 3]                               | A B              |
| .7 AN/SLA-10B blanker [ref. b, ch. 6]                       | A B              |
| .8 AN/ULQ-16 [ref. a, ch. 6; ref. e, ch. 3]                 | A B              |
| .9 Mk 36 SRBOC DLS [ref. g, app. D]                         | A B              |
| .10 SRBOC [ref. f; ref. g, app. D]                          | A B              |
| .11 NATO sea gant [ref. a, ch. 6]                           | A B              |
| .12 Giant/torch [ref. a, app. E; ref. g, app. D]            | A B              |
| .13 AN/SLQ-49 (rubber duck) [ref. e, ch. 3; ref. g, app. D] | A B              |
| .14 PCMS [ref. c]   | A B              |
| .15 Mk 53 NULKA DLS [ref. g, app. D]                        | A B              |
| .16 NULKA [ref. g, app. D]                                  | A B              |
| .17 TRDF [ref. c]   | A B              |

---

(Signature and Date)

## **209 INFORMATION WARFARE (IW) SYSTEMS (CONT'D)**

### **209.2 PRINCIPLES OF OPERATION**

- 209.2.1 What is the sequence of component involvement to accomplish shipboard IWS?  
[ref. a, ch. 8]

---

(Signature and Date)

### **209.3 PARAMETERS/OPERATING LIMITS**

For the items listed, answer the following questions:

- A. What is the frequency range?
- B. What is the bearing/DF capability?
- C. What display is available?
- D. What is the EA capability?
- E. What is the maximum separation between ships when using this decoy?

|         |   | <b><u>Questions</u></b> |
|---------|---|-------------------------|
| 209.3.1 | AN/SLQ-32(V)1 [ref. e, ch. 3]                       | A B C                   |
| .2      | AN/SLQ-32(V)2 [ref. b, ch. 4; ref. e, ch. 3]        | A B C                   |
| .3      | AN/SLQ-32(V)3 [ref. b, ch. 4; ref. e, ch. 3]        | A B C D                 |
| .4      | AN/SLQ-32(V)4 [ref. c; ref. e, ch. 3]               | A B C D                 |
| .5      | AN/SLQ-32(V)5 [ref. c; ref. e, ch. 3]               | A B C D                 |
| .6      | AN/SLQ-17 [ref. e, ch. 3]                           | A B C                   |
| .7      | AN/SSQ-72 outboard [ref. f, app. B; ref. g, app. D] | A B C                   |
| .8      | AN/ALR-142 [ref. e, ch. 3]                          | A B C                   |
| .9      | SRBOC [ref. g, apps. B, E]                          | A D                     |
| .10     | AN/SLQ-49 [ref. e, ch. 3]                           | D E                     |
| .11     | NULKA [ref. g, app. D]                              | A D E                   |
| .12     | TRDF [ref. c]                                       | A B C                   |

---

(Signature and Date)

### **209.4 SYSTEM INTERFACE**

- 209.4.1 How does IW data interface with CDS. [ref. g, app. D]
- .2 How is IWS data interfaced with other weapons systems in non-NTDS ships?  
[ref. a, ch. 8]
- .3 How is AN/ALQ-142 information interfaced with the ship? [ref. e, ch. 3]

---

(Signature and Date)

## **209      INFORMATION WARFARE (IW) SYSTEMS (CONT'D)**

### 209.5      SAFETY PRECAUTIONS

209.5.1      What special safety precautions apply to loading and firing SRBOC? [ref. d, ch. C14]

---

(Signature and Date)



## 210 SHIP CONTROL SYSTEM

### References:

- [a] NAVEDTRA 14067, Seaman
  - [b] Ship's Information Book (SIB)
  - [c] Engineering Operational Sequencing System (EOSS)
  - [d] Shiphandling for the Mariner, (MacElrevey), 3rd Edition
  - [e] NAVEDTRA 14204, Operations Specialist 3
  - [f] Watch Officers Guide, (Stavridis), 14th Edition
  - [g] Manufacturer's Technical Manual
- 

### 210.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. Where is it located?
- C. What are the modes of operation or control?
- D. What is the effect on system operation if this component fails?

|         |   | <u>Questions</u> |
|---------|---|------------------|
| 210.1.1 | Ship control system [ref. a, ch. 2]                       | A                |
| .2      | Steering system: [ref. a, ch. 2; ref. b]                  |                  |
|         | a. Bridge   | A B C D          |
|         | b. Aftersteering  | A B C D          |
| .3      | Propulsion system:  |                  |
|         | a. EOT/POT (steam) [ref. a, ch. 2; ref. b]                | A B D            |
|         | b. SCC (gas turbine/diesel/VSP) [ref. a, ch. 2; ref. b]   | A B C D          |
|         | c. Main control (steam/diesel) [refs. b, c]               | A B D            |
|         | d. CCS (gas turbine) [refs. b, c]                         | A B D            |
| .4      | Alarms: [ref. b, c]                                       |                  |
|         | a. Bridge   | A B              |
|         | b. CCS/main control                                       | A B              |
|         | c. Aftersteering  | A B              |
| .5      | Information and display equipment [ref. b; ref. e, ch. 1] | A B              |
| .6      | Navigation equipment [ref. a, ch. 2; ref. b]              | A B              |
| .7      | Communications equipment [ref. a, ch. 2; ref. e, ch. 3]   | A B              |
| .8      | IBS [ref. g]  | A B C D          |

## 210 SHIP CONTROL SYSTEM (CONT'D)

### Questions

- 210.1.9 APU [ref. b; ref. f, ch. 8]  
.10 Bowthrusters [ref. b; ref. d, ch. 2]

A B C D  
A B C D

---

(Signature and Date)

### 210.2 PRINCIPLES OF OPERATION

- 210.2.1 Draw a diagram of the major equipment, indicators and alarms on the bridge. [ref. b]
- .2 Using a diagram of the system, show the path and the control hierarchy of: [ref. b]
- a. Steering system from the bridge to the aftersteering
  - b. Propulsion control (GT) from the SCC to PACC to the PLCC
- .3 What is the override priority of the general, chemical, collision, and helo crash alarms? [ref. d, ch. 15]
- .4 What indications will you receive if the system is malfunctioning? [ref. c]

---

(Signature and Date)

### 210.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

### 210.4 SYSTEM INTERFACE – None to be discussed.

### 210.5 SAFETY PRECAUTIONS

- 210.5.1 What safety precautions must be observed when operating this system? [ref. c]
- .2 What safety precautions must be observed when: [ref. c]
- a. Shifting steering control from the bridge to aftersteering
  - b. Responding to a propulsion system casualty
  - c. Transferring throttle control between stations
  - d. Breaking shaft(s) free pierside

---

(Signature and Date)

## 211 ANCHOR WINDLASS SYSTEM

### References:

- [a] Ship's Information Book (SIB)
  - [b] Ship's Drawings
  - [c] NAVEDTRA 14343, Boatswain's Mate
  - [d] OPNAVINST 5100.19D (Change 1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
  - [e] NSTM S9086-TW-STM-010/CH-582R1, Mooring and Towing
- 

### 211.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. Where is it located?
- C. What are the safety/protective devices for this component/component part?
- D. What are the modes of operation or control?

#### Questions

- |         |  |         |
|---------|--|---------|
| 211.1.1 | Anchor windlass system [ref. c, ch. 4]           | A       |
| .2      | Capstan/gypsyhead [refs. a, b, e; ref. c, ch. 4] | A B C D |
| .3      | Control boxes [ref. a]                           | A B C D |
| .4      | Electric brake [ref. a]                          | A B C D |
| .5      | Controller [ref. a]                              | A B C D |
| .6      | Wildcat engage/disengage wheel [ref. a]          | A B D   |
| .7      | Mechanical brake [ref. a]                        | A B     |

---

(Signature and Date)

### 211.2 PRINCIPLES OF OPERATION

- 211.2.1 How do the components work together to achieve the system's function?  
[ref. c, ch. 4]

### 211.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

### 211.4 SYSTEM INTERFACE – None to be discussed.

## **211      ANCHOR WINDLASS SYSTEM (CONT'D)**

### **211.5      SAFETY PRECAUTIONS**

**211.5.1      What special safety precautions apply to:**

- a.      Personnel during operation of this system [ref. d, ch. C6]
- b.      Handling a mooring line [ref. a]
- c.      Nylon mooring line under heavy strain [ref. c, ch. 2; ref. d, ch. C5]
- d.      Working synthetic and natural fiber lines together [ref. c, ch. 2; ref. d, ch. C5]
- e.      Tattletale line [ref. c, ch. 2]
- f.      Overstressing synthetic lines [ref. c, ch. 2]

---

(Signature and Date)

## 212 ANCHOR SYSTEM

### References:

- [a] NAVEDTRA 14343, Boatswain's Mate, Ch. 4
  - [b] NAVEDTRA 14067, Seaman
  - [c] OPNAVINST 5100.19D (Change 1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
  - [d] Ship's Information Book (SIB)
  - [e] NSTM S9086-TV-STM-000/CH-581, Anchoring
  - [f] NSTM S9086-TW-STM-010/CH-582R1, Mooring and Towing
- 

### 212.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. Where is it located?

#### Questions

- |         |   |     |
|---------|---|-----|
| 212.1.1 | Anchor system [ref. a]                    | A   |
| .2      | Anchor [refs. a, d]                       | A B |
| .3      | Anchor windlass [ref. b, ch. 6]           | A B |
| .4      | Hawse/spill pipe [ref. d]                 | A B |
| .5      | Chain locker [ref. a]                     | A B |
| .6      | Anchor chain [ref. c, ch. C4; refs. e, f] | A B |
|         | a. Link                                   | A B |
|         | b. Detachable link                        | A B |
|         | c. Chain swivel                           | A B |
|         | d. Chain stopper                          | A B |
|         | e. Bitter end (weak link assembly)        | A B |

---

(Signature and Date)

### 212.2 PRINCIPLES OF OPERATION

- 212.2.1 What is the sequence of component involvement to accomplish: [ref. a]
- a. Brake release method
  - b. Anchoring in deep water
  - c. Weighing anchor

---

(Signature and Date)

## 212 ANCHOR SYSTEM (CONT'D)

### 212.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [ref. d]

A. What is the normal operating value?

- 212.3.1 Length of anchor chain(s)
- .2 Weight of anchor(s)
- .3 Heaving in speed of windlass

#### Questions

A  
A  
A

---

(Signature and Date)

### 212.4 SYSTEM INTERFACE – None to be discussed.

### 212.5 SAFETY PRECAUTIONS

- 212.5.1 What special safety precautions apply when operating this system:  
[ref. a, ref. c, ch. C5]

---

(Signature and Date)

## 213 CONNECTED UNDERWAY REPLENISHMENT (CONREP) SYSTEM

### References:

- [a] NWP 4-01.4, Underway Replenishment
  - [b] Ship's Information Book (SIB)
  - [c] OPNAVINST 5100.19D (Change 1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
  - [d] Engineering Operational Sequencing System (EOSS)
  - [e] NSTM S9086-TK-STM-010/CH-571R1, Underway Replenishment
- 

### 213.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. What stations on your ship are capable of receiving/sending this type of rig?
- C. What is the maximum capacity of this rig?

#### Questions

- |         |   |       |
|---------|---|-------|
| 213.1.1 | CONREP [ref. a, ch. 1]  | A     |
| .2      | Fueling rigs [ref. a, ch. 6; refs. b, e]                        | A     |
|         | a. STREAM [ref. a, ch. 6; refs. b, e]                           | A B   |
|         | b. Astern [ref. a, ch. 5; refs. b, e]                           | A B   |
| .3      | Solid cargo/personnel transfer rigs [ref. a, ch. 6; refs. b, e] | A     |
|         | a. STREAM [ref. a, ch. 6; refs. b, e]                           | A B C |
|         | b. Synthetic high line [ref. a, ch. 8; ref. b]                  | A B C |

---

(Signature and Date)

### 213.2 PRINCIPLES OF OPERATION

- 213.2.1 What is the sequence of component involvement to accomplish:  
[ref. a, chs. 5, 6; ref. e]
- a. Receiving a rig
  - b. Hooking up a rig
  - c. Transfer operations
  - d. Receiving/transferring personnel
  - e. Disconnecting the rig

## **213      CONNECTED UNDERWAY REPLENISHMENT (CONREP) SYSTEM (CONT'D)**

- 213.2.1    f.      Normal breakaway procedures  
             g.      Emergency breakaway procedures

---

(Signature and Date)

213.3      PARAMETERS/OPERATING LIMITS – None to be discussed.

213.4      SYSTEM INTERFACE

213.4.1    How does this system interface with the following: [ref. d]

- a.      Fuel transfer systems  
b.      Potable water system  
c.      Feed water

---

(Signature and Date)

213.5      SAFETY PRECAUTIONS

213.5.1    What safety precautions must be observed when operating this system?  
             [ref. a, ch. 8; ref. c, ch. C3]

---

(Signature and Date)



214 SHIPHANDLING SYSTEM

References:

- [a] Naval Shiphhandling (Crenshaw), 4<sup>th</sup> Edition
  - [b] Shiphhandling for the Mariner (MacElrevey), 3<sup>rd</sup> Edition
  - [c] NWP 4-01.4, Underway Replenishment
  - [d] OPNAVINST 3120.32C (Change 5), Standard Organization and Regulations Manual of the U.S. Navy (SORM)
  - [e] Ship's Information Book (SIB)
  - [f] OPNAVINST 5100.19D (Change 1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
- 

214.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. What is the effect?

Questions

- |         |                                       |     |
|---------|---------------------------------------|-----|
| 214.1.1 | Shiphhandling system [ref. a, ch. 1]  | A   |
| .2      | Controllable forces [ref. a, ch. 2]   | A B |
| .3      | Uncontrollable forces [ref. a, ch. 2] | A B |
| .4      | Communications [ref. d, ch. 3-4]      | A B |
| .5      | Watchstations [ref. d, ch. 3-4]       | A B |

---

(Signature and Date)

214.2 PRINCIPLES OF OPERATION

- 214.2.1 What is the sequence of component involvement to accomplish:
- a. Anchoring [ref. b, ch. 8]
  - b. Buoy mooring [ref. b, ch. 9]
  - c. CONREP conning [ref. b, ch. 9]
    - 1. Approach
    - 2. Tensioning/detensioning
    - 3. Breakaway

## 214 SHIPHANDLING SYSTEM (CONT'D)

- 214.2.1 d. Mooring alongside [ref. b]  
1. Pier [ch. 4-6]  
2. Another ship-at-anchor [ch. 9]  
e. Mediterranean moor [ref. b, ch. 9]

---

(Signature and Date)

### 214.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [ref. a, ch. 2; ref. e]

- A. What is the normal operating value?  
B. What are the allowable operating limits?  
C. Where are the parameters sensed or monitored?  
D. What is the physical location of the indicators?  
E. What is the alarm set point?

- 214.3.1 Controllable forces  
.2 Uncontrollable forces

**Questions**  
A B C D E  
A B C D E

### 214.4 SYSTEM INTERFACE

- 214.4.1 How does this system interface with the following: [ref. d, ch. 3-4]  
a. Communications  
b. Watchstations

### 214.5 SAFETY PRECAUTIONS

- 214.5.1 What safety precautions must be observed when:  
a. Anchoring [ref. f, ch. C5]  
b. Performing CONREP [ref. c, ch. 5-6]  
c. Mooring [ref. c, ch. C5]

---

(Signature and Date)

## 215 MINE WARFARE (MIW) WEAPONS SYSTEM

References:

- [a] NWP 3-15, Mine Warfare
  - [b] NTTP 3-15.21, Surface Mine Countermeasures Operations (SMCM)
  - [c] NWP 3-15.5, Organic Mine Countermeasures (OMCM)
  - [d] NTTP 3-15.23, Underwater Mine Countermeasures (UMCM)
  - [e] Manufacturer's Technical Manual
- 

### 215.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

- A. What is its function?
- B. Where is it located?
- C. What are the sources of power?
- D. What are the modes of operation or control?

#### Questions

- |         |                                      |         |
|---------|--------------------------------------|---------|
| 215.1.1 | MIW weapons system [ref. a, ch. 4]   | A       |
| .2      | AN/SLQ-48 MNV [ref. b, ch. 3]        | A B C D |
| .3      | MP-1 cutter arm [ref. b, ch. 3]      | A B C D |
| .4      | MP-2 bomblet [ref. b, ch. 3]         | A B C D |
| .5      | MP-3 bomblet [ref. e]                | A B C D |
| .6      | RAMICS [ref. c, app. C]              | A B C D |
| .7      | AMNS [ref. c, app. B]                | A B C D |
| .8      | ALMDS [ref. c, app. D]               | A B C D |
| .9      | OASIS [ref. c, app. E]               | A B C D |
| .10     | RMS [ref. c, app. F]                 | A B C D |
| .11     | Influence sweep [ref. c, ch. 3]      | A B C D |
| .12     | Mechanical sweep [ref. c, ch. 3]     | A B C D |
| .13     | Marine mammal system [ref. d, ch. 1] | A D     |
| .14     | EOD detachments [ref. d, ch. 1]      | A B D   |

---

(Signature and Date)

## **215 MINE WARFARE (MIW) WEAPONS SYSTEM (CONT'D)**

### **215.2 PRINCIPLES OF OPERATION**

- 215.2.1 How do the components work together to achieve the system's function?  
[ref. a, ch. 4]

---

(Signature and Date)

### **215.3 PARAMETERS/OPERATING LIMITS**

For the items listed, answer the following questions:

- A. What mine types are these weapons designed for?
- B. What are the weapons firing capabilities?
- C. What are the weapons minimum and maximum effective depths?

- 215.3.1 MP-1 cutter arm [ref. b, ch. 3]  
.2 MP-2 bomblet [ref. b, ch. 3]  
.3 MP-3 bomblet [ref. e]  
.4 RAMICS [ref. c, app. C]  
.5 AMNS [ref. c, app. B]  
.6 ALMDS [ref. c, app. D]  
.7 OASIS [ref. c, app. E]  
.8 RMS [ref. c, app. F]  
.9 Influence sweep [ref. b, ch. 3]  
.10 Mechanical sweep [ref. b, ch. 3]  
.11 Marine mammal system [ref. d, ch. 6]

#### **Questions**

A B C  
A B C  
A B C  
A B C  
A B C  
A C  
A C  
A C  
A B C  
A C  
A C  
A C

---

(Signature and Date)

## **215 MINE WARFARE (MIW) WEAPONS SYSTEM (CONT'D)**

### **215.4 SYSTEM INTERFACE**

- 215.4.1 How does the RMS system interfaces with the AN/SQQ-89 system? [ref. c, app. F]
- .2 How does RAMICS, ALMDS, AMNS. OASIS, systems interface with the MH-60 helicopter? [ref. c, app. B through F]
- .3 How does the MP explosive interface with the MNS? [ref. b, ch. 3]
- .4 How does the MCM sweep systems interface with the deploying platform? [ref. b, ch. 3]

---

(Signature and Date)

### **215.5 SAFETY PRECAUTIONS**

- 215.5.1 What special safety precautions apply to:
- a. MP's [ref. e]
  - b. AMNS [ref. e]
  - c. Marine mammals [ref. d, ch. 6]
  - d. EOD detachments [ref. d, ch. 6]

---

(Signature and Date)



## 300 INTRODUCTION TO WATCHSTATIONS

### 300.1 INTRODUCTION

The Watchstation section of your PQS is where you get a chance to demonstrate to your Qualifier that you can put the knowledge you have gained in the previous sections to use. It allows you to practice the tasks required for your watchstation and to handle abnormal conditions and emergencies. Before starting your assigned tasks, you must complete the prerequisites that pertain to the performance of that particular task. Satisfactory completion of all prerequisites is required prior to achievement of final watchstation qualification.

### 300.2 FORMAT

Each watchstation in this section contains:

- A FINAL QUALIFICATION PAGE, which is used to obtain the required signatures for approval and recording of Final Qualification.
- PREREQUISITES, which are items that must be certified completed before you can begin qualification for a particular watchstation. Prerequisites may include schools, watchstation qualifications from other PQS books, and fundamentals, systems, or watchstation qualifications from this book. Prior to signing off each prerequisite line item, the Qualifier must verify completion from existing records. Record the date of actual completion, not the sign-off date.
- WATCHSTATION Performance, which is the practical factors portion of your qualification. The performance is broken down as follows:

Tasks (routine operating tasks that are performed frequently)  
Infrequent Tasks  
Abnormal Conditions  
Emergencies  
Training Watches

If there are multiple watchstations, a QUALIFICATION PROGRESS SUMMARY will appear at the end of the Standard.

## 300 INTRODUCTION TO WATCHSTATIONS (CONT'D)

### 300.3 OPERATING PROCEDURES

The PQS deliberately makes no attempt to specify the procedures to be used to complete a task or control or correct a casualty. The only proper sources of this information are the technical manuals, Engineering Operational Sequencing System (EOSS), Naval Air Training and Operating Procedures Standardization (NATOPS) or other policy-making documents prepared for a specific installation or a piece of equipment. Additionally, the level of accuracy required of a trainee may vary from school to school, ship to ship, and squadron to squadron based upon such factors as mission requirements. Thus, proficiency may be confirmed only through demonstrated performance at a level of competency sufficient to satisfy the Commanding Officer.

### 300.4 DISCUSSION ITEMS

Though actual performance of evolutions is always preferable to observation or discussion, some items listed in each watchstation may be too hazardous or time consuming to perform or simulate. Therefore, you may be required to discuss such items with your Qualifier.

### 300.5 NUMBERING

Each Final Qualification is assigned both a watchstation number and a NAVEDTRA Final Qualification number. The NAVEDTRA number is to be used for recording qualifications in service and training records.

### 300.6 HOW TO COMPLETE

After completing the required prerequisites applicable to a particular task, you may perform the task under the supervision of a qualified watchstander. If you satisfactorily perform the task and can explain each step, your Qualifier will sign you off for that task. You may then be required to stand a watch or a number of watches to earn qualification. There are two levels of supervision for this:

- Under Instruction: You will perform the duties and tasks of the watchstation under the direct supervision of a qualified watchstander or supervisor. This is intended to be a one-on-one training situation.
- Under qualified supervision: You will perform the duties and tasks of the watchstation with minor guidance from a qualified watchstander or supervisor. This is intended to allow you to develop proficiency in and operational environment with minimal oversight or have a supervisor close at hand if needed.

After all line items have been completed, your Qualifier will verify Final Qualification by signing and dating the Final Qualification pages.



## FINAL QUALIFICATION

NAVEDTRA 43101-4F

301 SURFACE WARFARE OFFICER (SWO) COMBAT  
INFORMATION CENTER WATCH OFFICER (CICWO)

NAME \_\_\_\_\_ RATE/RANK \_\_\_\_\_

This page is to be used as a record of satisfactory completion of designated sections of the Personnel Qualification Standard (PQS). Only specified supervisors may signify completion of applicable sections either by written or oral examination, or by observation of performance aboard or in a high fidelity trainer. The examination or checkout need not cover every item; however, a sufficient number should be covered to demonstrate the examinee's knowledge. Should supervisors *give away* their signatures, unnecessary difficulties can be expected in future routine operations.

A copy of this completed page shall be kept in the individual's training jacket.

---

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (NAVEDTRA 43101-4F).

RECOMMENDED \_\_\_\_\_ DATE \_\_\_\_\_  
Department Head

RECOMMENDED \_\_\_\_\_ DATE \_\_\_\_\_  
Senior Watch Officer

RECOMMENDED \_\_\_\_\_ DATE \_\_\_\_\_  
Executive Officer

QUALIFIED \_\_\_\_\_ DATE \_\_\_\_\_  
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY \_\_\_\_\_ DATE \_\_\_\_\_

## WATCHSTATION 301

### 301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO)

Estimated completion time: 6 months

---

NOTE: EITHER GCCS-M (NAVEDTRA 43555-1B) OR GCCS-M WATCH OFFICER  
COURSE (A-150-2960) SHOULD BE COMPLETED.

#### 301.1 PREREQUISITES

**FOR OPTIMUM TRAINING EFFECTIVENESS, THE FOLLOWING ITEMS SHOULD BE  
COMPLETED PRIOR TO STARTING YOUR ASSIGNED TASKS BUT SHALL BE COMPLETED  
PRIOR TO FINAL WATCHSTATION QUALIFICATION.**

##### 301.1.1 SCHOOLS:

GCCS-M Watch Officer Course (A-150-2960) (RECOMMENDED)

Completed \_\_\_\_\_  
(Qualifier and Date)

##### .2 PQS QUALIFICATIONS:

Communications Security Material System (CMS) (NAVEDTRA 43462-B),  
301 Communications Security Material System (CMS) User

Completed \_\_\_\_\_  
(Qualifier and Date)

Decoy Launching Systems (NAVEDTRA 43341-D), 304 MK 164 Bridge Launcher  
Control Panel Operator

Completed \_\_\_\_\_  
(Qualifier and Date)

GCCS-M (NAVEDTRA 43555-1B), 301 GCCS-M Operator (RECOMMENDED)

Completed \_\_\_\_\_  
(Qualifier and Date)

##### .3 FUNDAMENTALS FROM THIS PQS:

101 Safety Precautions

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

**301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER  
WATCH OFFICER (CICWO) (CONT'D)**

301.1.3 102 Composite Warfare Command (CWC) Concept

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

103 Operational Reports

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

104 Combat Information Center (CIC) Mission

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

105 Combat Information Center (CIC) Plotting Procedures and Displays

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

106 Combat Information Center (CIC) Watch Organization and Personnel

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

107 Combat Information Center (CIC) Publications and Logs

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

108 Radar

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

109 Naval Tactical Data System (NTDS)/Combat Direction System (CDS)

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

110 Combat Information Center (CIC) Special Evolutions

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

**301      SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER  
WATCH OFFICER (CICWO) (CONT'D)**

301.1.3      111    Naval Communications

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

112    Maneuvering Board

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

113    Radio Propagation

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

114    Signal Security

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

115    U.S. Naval Assets

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

116    Naval Gun and Ammunition

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

117    Gunfire Control

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

118    Naval Missile

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

119    Air Defense (AD)/Antiship Missile Defense (ASMD)

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

**301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER  
WATCH OFFICER (CICWO) (CONT'D)**

301.1.3 120 Surface Warfare (SUW)

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

121 Propagation of Sound in Water

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

122 Sonar

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

123 Antisubmarine Warfare (ASW) Communications

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

124 Antisubmarine Warfare (ASW) Organization

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

125 Antisubmarine Warfare (ASW) Aircraft and Sonobuoy

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

126 Antisubmarine Warfare (ASW) Tactics

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

127 Electronic Warfare (EW)

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

128 Electronic Support (ES)

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

**301      SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER  
WATCH OFFICER (CICWO) (CONT'D)**

301.1.3    129    Electronic Attack (EA)

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

130    Electronic Protection (EP)

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

131    Military Deception (MILDEC)

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

132    Mine Warfare (MIW) Organization

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

133    Mining

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

134    Mine Countermeasure

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

135    Amphibious Task Force/Task Group Organization

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

136    Amphibious Warfare Operations

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

137    Amphibious Landing Craft

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

**301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER  
WATCH OFFICER (CICWO) (CONT'D)**

301.1.3 138 Naval Surface Fire Support (NSFS)

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

139 Naval Threat

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

161 Combat Systems Operational Sequencing System (CSOSS)

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

.4 SYSTEMS FROM THIS PQS:

201 Radar Equipment

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

202 Naval Tactical Data System (NTDS)

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

203 Naval Communications

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

204 Naval Gun

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

205 Gun and Missile Fire Control

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

**301      SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER  
WATCH OFFICER (CICWO) (CONT'D)**

301.1.4    206    Naval Missile

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

207    Surface Ship Sonar

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

208    Surface Ship Antisubmarine Warfare (ASW) Weapons

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

209    Information Warfare (IW)

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)

215    Mine Warfare (MIW) Weapons

Completed \_\_\_\_\_ .5% of Watchstation  
(Qualifier and Date)



# **301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (CONT'D)**

## **301.2 TASKS**

For the tasks listed below:

- A. What are the steps of this procedure?
- B. What control/coordination is required?
- C. What means of communications are used?
- D. What operating limitations are imposed?
- E. What safety precautions must be observed?
- F. What parameters/operating limits must be monitored?
- G. What are the indications received if proper procedures are not being followed; what corrective action is required?
- H. Satisfactorily perform this task.

## **Questions**

- 301.2.1 Review/determine status of equipment in CIC prior to relieving the watch

A D E F G H

\_\_\_\_\_  
(Signature and Date)

- .2 Verify inventory of all accountable publications and COMSEC material in CIC has been taken prior to relieving the watch

A B G H

\_\_\_\_\_  
(Signature and Date)

- .3 Review the following prior to relieving watch as CICWO:

- |                                      |       |
|--------------------------------------|-------|
| a. Commanding Officer's night orders | A G H |
| b. Daily combat intentions           | A G H |
| c. Battle orders                     | A G H |
| d. Standing orders                   | A G H |
| e. OPTASK                            | A G H |
| f. OPGEN                             | A G H |
| g. DIM's                             | A G H |
| h. SOE                               | A G H |
| i. Airplan                           | A G H |

\_\_\_\_\_  
(Signature and Date)

- .4 Monitor duties of CIC and supporting watchstanders

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

### 301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (CONT'D)

#### Questions

- 301.2.5 Increase CICs condition of readiness, keeping a full grasp of the tactical situation

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .6 Monitor all reports being transmitted from CIC to bridge

A B C E F G H

\_\_\_\_\_  
(Signature and Date)

- .7 Review CIC logs

A B C G H

\_\_\_\_\_  
(Signature and Date)

- .8 Verify all tactical information is current and correctly displayed on surface summary plot/ASTAB

A B C G H

\_\_\_\_\_  
(Signature and Date)

- .9 Supervise plotting on the DRT/DDRT, ensuring that proper plotting procedures are used in CIC

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .10 Supervise use of various plots, displays, and status boards available in CIC

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .11 Use a maneuvering board and other applicable methods to determine course, speed, and CPA of a surface contact and compare to an independent solution

A B H

\_\_\_\_\_  
(Signature and Date)

## 301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (CONT'D)

### Questions

- 301.2.12 Use a maneuvering board and other applicable methods to determine course and speed to pass a surface contact at a specified distance and compare to an independent solution A B H

---

(Signature and Date)

- .13 Use a maneuvering board and other applicable methods to determine a solution to take station in a formation (time, course, speed specified) with guide both in and out of center and compare to an independent solution A B H

---

(Signature and Date)

- .14 Use a maneuvering board and all available means to determine true wind and compare to an independent solution A H

---

(Signature and Date)

- .15 Use a maneuvering board and all available means to determine course and speed to obtain a specified desired wind and compare to an independent solution A D F H

---

(Signature and Date)

- .16 Apply advance, transfer, acceleration, and deceleration to a maneuvering board solution A D F H

---

(Signature and Date)

- .17 Determine maneuvering board solutions and make recommendations to the Conning Officer during multiship tactical maneuvers A B C E F H

---

(Signature and Date)

- .18 Prepare/supervise a 90-minute tactical nonmaneuvering drill A B C D E F G H

---

(Signature and Date)

### 301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (CONT'D)

#### Questions

301.2.19 Energize and properly adjust a radar repeater to provide proper presentation

A C D E F G H

\_\_\_\_\_  
(Signature and Date)

.20 Observe tuning of surface search radar

A H

\_\_\_\_\_  
(Signature and Date)

.21 Point out exact location of remote cutout switches for radar repeaters and other major electronic equipment

A E H

\_\_\_\_\_  
(Signature and Date)

.22 Determine ship's position using radar

A D E F G H

\_\_\_\_\_  
(Signature and Date)

.23 Determine ship's position using all electronic navigation systems available in CIC

A B C D F G H

\_\_\_\_\_  
(Signature and Date)

.24 Determine your ship's IFF codes using applicable instructions

A D F G H

\_\_\_\_\_  
(Signature and Date)

.25 Identify emergency IFF codes

A E H

\_\_\_\_\_  
(Signature and Date)

.26 Setup and properly maintain a CADRT/DDRT/DRT plot during multicontact environment

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

### 301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (CONT'D)

|          |  | <u>Questions</u> |
|----------|--|------------------|
| 301.2.27 | Observe special sea and anchor detail evolution in CIC   | A B C D E F G H  |
|          | _____<br>(Signature and Date)  |                  |
| .28      | Supervise CIC actions during a man overboard exercise  | A B C D E F G H  |
|          | _____<br>(Signature and Date)  |                  |
| .29      | Observe CIC during an actual or simulated SAR exercise   | A B C D E F G H  |
|          | _____<br>(Signature and Date)  |                  |
| .30      | Observe CIC during an actual or simulated ASMD/DTE exercise  | A B C D E F G H  |
|          | _____<br>(Signature and Date)  |                  |
| .31      | Observe CIC during an actual or simulated SAU exercise   | A B C D E F G H  |
|          | _____<br>(Signature and Date)  |                  |
| .32      | Observe CIC during an actual or simulated SAG exercise   | A B C D E F G H  |
|          | _____<br>(Signature and Date)  |                  |
| .33      | Supervise a DDRT/DRT/MEDAL plot during an MIW exercise   | A B C D E F G H  |
|          | _____<br>(Signature and Date)  |                  |
| .34      | Implement and patch a communications plan  | A B C D E F G H  |
|          | _____<br>(Signature and Date)  |                  |
| .35      | Discuss and identify all means of voice and data communication with a qualified Radio Watch Supervisor | A B C D E F G H  |
|          | _____<br>(Signature and Date)  |                  |

### 301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (CONT'D)

#### Questions

301.1.36 Complete CAST lessons for basic tracker through  
surface/subsurface weapons coordinator

A H

\_\_\_\_\_  
(Signature and Date)

.37 Observe a CSTT drill scenario

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.38 Review ship's electronic casualty control/CSOSS procedures

A G H

\_\_\_\_\_  
(Signature and Date)

.39 Observe a STT drill scenario

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.40 Supervise the setting of EMCON

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.41 Supervise the setting of HERO

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.42 Observe OCSOT

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.43 Observe USW SCOT

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.44 Encode and decode your ship's daily changing call sign

A B H

\_\_\_\_\_  
(Signature and Date)

## 301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (CONT'D)

### Questions

- 301.2.45 Encode, decode, and transmit messages using the U.S. Navy Operations Code during a communications exercise or actual transmission  
A B C H
- \_\_\_\_\_  
(Signature and Date)
- .46 Authenticate a voice radiotelephone transmission using transmission authentication procedures during an actual transmission or during a communications exercise  
A B C G H
- \_\_\_\_\_  
(Signature and Date)
- .47 Prepare and transmit an initial contact report and an amplifying contact report  
A B C H
- \_\_\_\_\_  
(Signature and Date)
- .48 Prepare a LOCATOR message  
A B C H
- \_\_\_\_\_  
(Signature and Date)
- .49 Observe the setup and operation of GCCS-M  
A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .50 Review the information available from GCCS-M  
A C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .51 Verify from applicable publications and OPTASKS, the data link parameters for the link currently in use  
A H
- \_\_\_\_\_  
(Signature and Date)
- .52 Review applicable guidance for the use of operational chat  
A B C D F G H
- \_\_\_\_\_  
(Signature and Date)

# **301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (CONT'D)**

301.2.53 Flight ops Questions  
A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

COMPLETED .2 AREA COMPRISES 25% OF WATCHSTATION.

## **301.3 INFREQUENT TASKS**

- A. What are the steps of this procedure?
- B. What control/coordination is required?
- C. What means of communications are used?
- D. What operating limitations are imposed?
- E. What safety precautions must be observed?
- F. What parameters must be monitored?
- G. What are the indications received if proper procedures are not being followed; what corrective action is required?
- H. Satisfactorily perform or simulate this infrequent task.

301.3.1 Attend an ammunition handling safety brief Questions  
A H

\_\_\_\_\_  
(Signature and Date)

.2 Attend a prefire safety brief A H

\_\_\_\_\_  
(Signature and Date)

.3 Observe prefire operational checks on the following:

- |  |                 |
|--|-----------------|
| a. Gun                                   | A B C D E F G H |
| b. Missile                               | A B C D E F G H |
| c. VLA                                   | A B C D E F G H |
| d. SVTT                                  | A B C D E F G H |
| e. CIWS                                  | A B C D E F G H |
| f. AN/SLQ-48 mine neutralization vehicle | A B C D E F G H |

\_\_\_\_\_  
(Signature and Date)



# **301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (CONT'D)**

## **Questions**

301.3.4 Observe a firing exercise of:

- a. Gun
- b. Missile
- c. VLA
- d. SVTT
- e. CIWS
- f. MP 1/2/3

A B C D E F G H  
A B C D E F G H  
A B C D E F G H  
A B C D E F G H  
A B C D E F G H  
A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .5 Observe spotting procedures performed by the gunnery team from weapons control

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .6 Observe duties of TAO and WCO during a surface/air gunnery exercise

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .7 Observe a completed air intercept as performed by a qualified AIC

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .8 Observe a TAO and other CIC watchstanders performing in an AD exercise

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .9 Observe a TAO and other CIC watchstanders performing in an MIW exercise

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

## 301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (CONT'D)

### Questions

- 301.3.10 Observe a TAO and other CIC watchstanders performing  
in a VBSS exercise (MIO/LIO/CD) A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .11 Observe SWC or equivalent, during an ASCM launch A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .12 Observe TAO and other CIC watchstanders during an  
SUW exercise A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .13 Observe an XBT/BSP launch and review SVP to determine  
sonic layer depth A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .14 Observe the prosecution of a sonar contact, by sonar  
operators, from initial sonar detection to weapons launch A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .15 Observe the duties of ASWE and SSC/SSWC during  
ASW operations A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .16 Observe the duties of USWFCO and UBFCs during  
ASW operations A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .17 Observe an ASTAC during ASW operations A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)

### 301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (CONT'D)

#### Questions

301.3.18 Observe flight operations from AATCC/primary flight control A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.19 Observe a C2W exercise A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.20 Observe an ES intercept to include the determination  
of the parameters of the intercepted emitter A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.21 Attend an amphibious ship-to-shore waterborne and/or  
airborne landing brief A H

\_\_\_\_\_  
(Signature and Date)

.22 Observe navigational and vectoring duties during a  
ship-to-shore waterborne and/or airborne landing A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.23 Observe an amphibious assault craft launch and recovery  
from CIC A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.24 Observe an NSFS evolution A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.25 Assist the Intelligence Officer in preparing and presenting  
an intelligence brief A H

\_\_\_\_\_  
(Signature and Date)

**301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER  
WATCH OFFICER (CICWO) (CONT'D)**

**Questions**

- 301.3.26 Observe the duties of Track Supervisor/TIC during initiation  
of TADIL operations

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .27 Review weapon, warning status, and weapons postures  
with a TAO

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .28 Transmit initial voice report via secure telephone

A B C D F G H

\_\_\_\_\_  
(Signature and Date)

- .29 Prepare an OPREP-3 Navy Blue message

A B C D F G H

\_\_\_\_\_  
(Signature and Date)

- .30 Prepare a Unit SITREP message

A B C D F G H

\_\_\_\_\_  
(Signature and Date)

- .31 Observe swept channel/Q-route exercise

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .32 Observe minehunting exercise

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .33 Observe minesweeping exercise

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

**301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER  
WATCH OFFICER (CICWO) (CONT'D)**

**Questions**

301.3.34 Observe mine neutralization exercise A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.35 Observe plotting of an MTA and MDA within MEDAL A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.36 Review man aloft procedures A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.37 Observe or review redcrown/greencrown operations/duties A B C H

\_\_\_\_\_  
(Signature and Date)

.38 Observe or review FADIZ operations/duties A B C H

\_\_\_\_\_  
(Signature and Date)

.39 Observe the use of sighting systems (TISS/FLIR/NMMSS/LLTV) A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

COMPLETED .3 AREA COMPRISES 15% OF WATCHSTATION.

## **301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (CONT'D)**

### **301.4 ABNORMAL CONDITIONS**

For the abnormal conditions listed below:

- A. What indications and alarms are received?
- B. What immediate action is required?
- C. What are the probable causes?
- D. What operating limitations are imposed?
- E. What emergencies or malfunctions may occur if immediate action is not taken?
- F. How does this condition affect other operations/equipment/watchstations?
- G. What follow-up action is required?
- H. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

|         |                                 | <b><u>Questions</u></b> |
|---------|---------------------------------|-------------------------|
| 301.4.1 | Loss of chilled water           | A B C D E F G H         |
|         | _____<br>(Signature and Date)   |                         |
| .2      | Loss of 60 Hz electrical power  | A B C D E F G H         |
|         | _____<br>(Signature and Date)   |                         |
| .3      | Loss of 400 Hz electrical power | A B C D E F G H         |
|         | _____<br>(Signature and Date)   |                         |
| .4      | Loss of HP air                  | A B C D E F G H         |
|         | _____<br>(Signature and Date)   |                         |
| .5      | Loss of LP/dry air              | A B C D E F G H         |
|         | _____<br>(Signature and Date)   |                         |
| .6      | Loss of Operational Program     | A B C D E F G H         |
|         | _____<br>(Signature and Date)   |                         |

### 301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO) (CONT'D)

#### Questions

301.4.7 Loss of communications A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.8 Loss of ship's sensors A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.9 Loss of gyro/dead reckoning/electronic navigation equipment A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

COMPLETED .4 AREA COMPRISES 15% OF WATCHSTATION.

#### 301.5 EMERGENCIES

For the emergencies listed below:

- A. What indications and alarms are received?
- B. What immediate action is required?
- C. What are the probable causes?
- D. What operating limitations are imposed?
- E. What other emergencies or malfunctions may occur if immediate action is not taken?
- F. How does this emergency affect other operations/equipment/watchstations?
- G. What follow-up action is required?
- H. Satisfactorily perform or simulate the immediate action for this emergency.

#### Questions

301.5.1 Class C fire in CIC A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.2 Electrical shock A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

**301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER  
WATCH OFFICER (CICWO) (CONT'D)**

**Questions**

301.5.3 Ruptured piping in CIC A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.4 Misfire procedures A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.5 Aircraft emergencies A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.6 Man overboard A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

COMPLETED .5 AREA COMPRISES 10% OF WATCHSTATION.

301.6 WATCHES

301.6.1 STAND THE FOLLOWING WATCHES UNDER INSTRUCTION:

Condition III (5 times)

\_\_\_\_\_  
(Signature and Date)

\_\_\_\_\_  
(Signature and Date)

\_\_\_\_\_  
(Signature and Date)

\_\_\_\_\_  
(Signature and Date)

\_\_\_\_\_  
(Signature and Date)

COMPLETED .6 AREA COMPRISES 10% OF WATCHSTATION.



**301      SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER  
WATCH OFFICER (CICWO) (CONT'D)**

301.7      EXAMINATIONS      (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

301.7.1      EXAMINATIONS      Pass a written examination

---

(Signature and Date)

.2      EXAMINATIONS      Pass an oral examination board

---

(Signature and Date)



## FINAL QUALIFICATION

NAVEDTRA 43101-4F

302 SURFACE WARFARE OFFICER (SWO) OFFICER OF  
THE DECK (OOD) UNDERWAY (U/W)

NAME \_\_\_\_\_ RATE/RANK \_\_\_\_\_

This page is to be used as a record of satisfactory completion of designated sections of the Personnel Qualification Standard (PQS). Only specified supervisors may signify completion of applicable sections either by written or oral examination, or by observation of performance aboard or in a high fidelity trainer. The examination or checkout need not cover every item; however, a sufficient number should be covered to demonstrate the examinee's knowledge. Should supervisors *give away* their signatures, unnecessary difficulties can be expected in future routine operations.

A copy of this completed page shall be kept in the individual's training jacket.

---

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (NAVEDTRA 43101-4F).

RECOMMENDED \_\_\_\_\_ DATE \_\_\_\_\_  
Department Head

RECOMMENDED \_\_\_\_\_ DATE \_\_\_\_\_  
Senior Watch Officer

RECOMMENDED \_\_\_\_\_ DATE \_\_\_\_\_  
Executive Officer

QUALIFIED \_\_\_\_\_ DATE \_\_\_\_\_  
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY \_\_\_\_\_ DATE \_\_\_\_\_



## WATCHSTATION 302

### 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W)

Estimated completion time: 6 months

---

#### 302.1 PREREQUISITES

FOR OPTIMUM TRAINING EFFECTIVENESS, THE FOLLOWING ITEMS SHOULD BE COMPLETED PRIOR TO STARTING YOUR ASSIGNED TASKS BUT MUST BE COMPLETED PRIOR TO FINAL WATCHSTATION QUALIFICATION.

##### 302.1.1 PQS Qualifications:

Surface Warfare Officer (SWO) Engineering (NAVEDTRA 43101-3F)

Completed \_\_\_\_\_  
(Qualifier and Date)

Small Boat Operations (NAVEDTRA 43152-E), 304 Small Boat Officer

Completed \_\_\_\_\_  
(Qualifier and Date)

Ship's Control and Navigational (NAVEDTRA 43492-2D), 307 Helm/Aftersteering  
Helm Safety Officer

Completed \_\_\_\_\_  
(Qualifier and Date)

##### .2 WATCHSTATIONS FROM THIS PQS:

301 Surface Warfare Officer (SWO) Combat Information Center Watch Officer  
(CICWO)

Completed \_\_\_\_\_  
(Qualifier and Date)

##### .3 FUNDAMENTALS FROM THIS PQS:

140 Bridge Equipment

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

**302      SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (CONT'D)**

302.1.3    141   Underway Bridge Watch

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

142   Deck Seamanship

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

143   Standard Commands

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

144   Anchoring

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

145   Bouy Mooring

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

146   Connected Underway Replenishment (CONREP)

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

147   Aviation Operations on Surface Ships

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

148   Towing

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

149   Shiphandling

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

**302      SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (CONT'D)**

302.1.3    150    Special/Emergency Evolutions

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

151    Weather

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

152    Tactical Maneuvering

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

153    Nautical Charts and Publications

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

154    Tides and Currents

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

155    Compass Error

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

156    Navigation

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

157    Navigation Rules

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

158    Visual Communications

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

## **302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)**

### **302.1.3 159 Survival and Survival Equipment**

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

### **160 Buoys**

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

### **162 Pollution Control**

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

### **163 Marine Mammal Protection**

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

### **164 Minor Caliber Weapons**

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

### **.4 SYSTEMS FROM THIS PQS:**

### **210 Ship Control**

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

### **211 Anchor Windlass**

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

### **212 Anchor**

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)



## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### 302.1.4 213 Connected Underway Replenishment (CONREP)

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

### 214 Shiphandling

Completed \_\_\_\_\_ 1% of Watchstation  
(Qualifier and Date)

### 302.2 TASKS

For the tasks listed below:

- A. What are the steps of this procedure?
- B. What control/coordination is required?
- C. What means of communications are used?
- D. What operating limitations are imposed?
- E. What safety precautions must be observed?
- F. What parameters/operating limits must be monitored?
- G. What are the indications received if proper procedures are not being followed; what corrective action is required?
- H. Satisfactorily perform this task (may be conducted using a shiphandling simulator, if appropriate).

### Questions

- 302.2.1 Familiarize yourself with applicable information available in CIC, engineering control, and bridge to include tactical, navigational, plant status, and shipboard information such as daily routine, equipment status, etc.

A B C D E F H

\_\_\_\_\_  
(Signature and Date)

- .2 Inventory all accountable publications and COMSEC material on the bridge prior to relieving the watch

A B G H

\_\_\_\_\_  
(Signature and Date)

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

302.2.3 Review the following prior to relieving watch:

- |    |                                   |       |
|----|-----------------------------------|-------|
| a. | Commanding Officer's night orders | A G H |
| b. | Daily combat intentions           | A G H |
| c. | Battle orders                     | A G H |
| d. | Standing orders                   | A G H |
| e. | OPTASK                            | A G H |
| f. | OPGEN                             | A G H |
| g. | DIM's                             | A G H |
| h. | SOE                               | A G H |
| i. | Airplan                           | A G H |

\_\_\_\_\_  
(Signature and Date)

- |    |   |           |
|----|---|-----------|
| .4 | Monitor performance of each bridge watchstander | A B E G H |
|----|---|-----------|

\_\_\_\_\_  
(Signature and Date)

- |    |   |                 |
|----|---|-----------------|
| .5 | Supervise and control use of ship's general announcing system | A B C D E F G H |
|----|---|-----------------|

\_\_\_\_\_  
(Signature and Date)

- |    |   |                 |
|----|---|-----------------|
| .6 | Operate and supervise use of all bridge equipment | A B C D E F G H |
|----|---|-----------------|

\_\_\_\_\_  
(Signature and Date)

- |    |   |           |
|----|---|-----------|
| .7 | Screen all reports to OOD and initiate appropriate action | A B C G H |
|----|---|-----------|

\_\_\_\_\_  
(Signature and Date)

- |    |  |           |
|----|--|-----------|
| .8 | Verify all tactical information is current and correctly displayed on surface summary plot/ASTAB | A B C G H |
|----|--|-----------|

\_\_\_\_\_  
(Signature and Date)

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

- 302.2.9 Supervise ship's routine as modified by POD, pass down log, and night orders  
A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .10 Ensure all bridge logs and records are properly maintained  
A G H
- \_\_\_\_\_  
(Signature and Date)
- .11 Monitor external radio circuits patched to bridge as directed by ship's communication plan  
A B C H
- \_\_\_\_\_  
(Signature and Date)
- .12 Increase bridge condition of readiness, keeping a full grasp of the tactical situation  
A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .13 Conduct passing honors and ceremonies  
A B C H
- \_\_\_\_\_  
(Signature and Date)
- .14 Transfer steering control from primary control to each alternate method of control  
A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .15 Make reports to the Commanding Officer using required format from the standing orders  
A B C H
- \_\_\_\_\_  
(Signature and Date)

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

- 302.2.16 Conn the ship using standard commands to the helm  
and lee helm A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .17 Observe a mooring evolution alongside a pier from bridge,  
noting standard commands to helm, lee helm, line handlers,  
and tugs A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .18 Observe line handling procedures from your ship's forecastle A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .19 Observe line handling procedures from your ship's fantail A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .20 Conn the ship during a mooring evolution A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .21 Conn the ship underway from a pier A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .22 Setup a stadimeter and use it to determine the distance to a ship A G H
- \_\_\_\_\_  
(Signature and Date)
- .23 Visually determine a ship's target angle at night A H
- \_\_\_\_\_  
(Signature and Date)

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

- |          |  |                 |
|----------|--|-----------------|
| 302.2.24 | Visually determine a ship's target angle during daylight hours                         | A H             |
|          | _____<br>(Signature and Date)  |                 |
| .25      | Determine bearing drift of a surface contact and its significance to risk of collision | A H             |
|          | _____<br>(Signature and Date)  |                 |
| .26      | Observe anchoring from the forecastle  | A B C D E F G H |
|          | _____<br>(Signature and Date)  |                 |
| .27      | Conn the ship through an anchoring evolution   | A B C D E F G H |
|          | _____<br>(Signature and Date)  |                 |
| .28      | Conn the ship underway from an anchorage   | A B C D E F G H |
|          | _____<br>(Signature and Date)  |                 |
| .29      | Observe an CONREP evolution at an CONREP station                                       | A B C D E F G H |
|          | _____<br>(Signature and Date)  |                 |
| .30      | Conn alongside during a CONREP evolution   | A B C D E F G H |
|          | _____<br>(Signature and Date)  |                 |
| .31      | Conn during a CONREP approach  | A B C D E F G H |
|          | _____<br>(Signature and Date)  |                 |

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

|          |   | <u>Questions</u> |
|----------|---|------------------|
| 302.2.32 | Conn during an CONREP breakaway   | A B C D E F G H  |
|          | _____<br>(Signature and Date)   |                  |
| .33      | Observe flight operations from AATCC/primary flight control   | A B C D E F G H  |
|          | _____<br>(Signature and Date)   |                  |
| .34      | Supervise aviation operations from bridge   | A B C D E F G H  |
|          | _____<br>(Signature and Date)   |                  |
| .35      | Act as JOOD/Conning Officer during engineering casualty control drills  | A B C D E F G H  |
|          | _____<br>(Signature and Date)   |                  |
| .36      | Conn ship during a multiship tactical maneuvering exercise  | A B C D E F G H  |
|          | _____<br>(Signature and Date)   |                  |
| .37      | Using two fixes and appropriate DRs, determine set and drift, SOG, course and speed to regain PIM, course and speed to maintain desired track, and compare with CIC | A B C D E F G H  |
|          | _____<br>(Signature and Date)   |                  |
| .38      | Construct and properly label a track for restricted water piloting using turn bearings, courses and speeds, danger bearings, and slide bars                         | A H              |
|          | _____<br>(Signature and Date)   |                  |
| .39      | Determine gyro error using a range  | A H              |
|          | _____<br>(Signature and Date)   |                  |

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

- 302.2.40 Apply local variation and deviation to the magnetic compass to obtain a true heading A H
- \_\_\_\_\_  
(Signature and Date)
- .41 Apply gyro error to indicated course to obtain a true heading A H
- \_\_\_\_\_  
(Signature and Date)
- .42 Compare ship's position, set, and drift with CIC A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .43 Observe bridge navigation team during restricted waters transit A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .44 Evaluate reports from the navigator to the OOD during restricted waters transit A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .45 Determine the computed visibility of a navigational light A H
- \_\_\_\_\_  
(Signature and Date)
- .46 Interpret tide and tidal current graphs for applicable stations A H
- \_\_\_\_\_  
(Signature and Date)
- .47 Observe an azimuth of sun and determine compass error A H
- \_\_\_\_\_  
(Signature and Date)

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

302.2.48 Compare fathometer readings with the charted depth of ship's fixed navigation position

A H

\_\_\_\_\_  
(Signature and Date)

.49 Establish ship's position using each available electronic navigation system

A H

\_\_\_\_\_  
(Signature and Date)

.50 Read and break flaghoist signals during a flaghoist drill

A H

\_\_\_\_\_  
(Signature and Date)

.51 Encode and decode signals from ATP 1(C), Vol. II, for actual transmissions/receptions or during a flaghoist drill

A H

\_\_\_\_\_  
(Signature and Date)

.52 Encode and decode signals from Pub. 102 during actual transmissions/receptions or during a flaghoist drill

A H

\_\_\_\_\_  
(Signature and Date)

.53 Prepare an outgoing message for visual transmission using a visual message blank

A H

\_\_\_\_\_  
(Signature and Date)

.54 Conduct and log a voice communications exchange using bridge-to-bridge radiotelephone

A B C D F G H

\_\_\_\_\_  
(Signature and Date)



## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

302.2.55 Coordinate safe passage with another vessel using  
bridge-to-bridge radiotelephone

A B C D F G H

\_\_\_\_\_  
(Signature and Date)

.56 Observe a man overboard drill from recovery station

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.57 Conn the ship to recover an actual or simulated man overboard

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.58 Determine speed limitations based on propulsion plant  
capabilities and lineup

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.59 Observe wet well deck operations from the following:

- a. Bridge
- b. Debark control
- c. Welldeck control

A B C D E F G H

A B C D E F G H

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.60 Supervise setting of EMCON/HERO conditions on all bridge  
equipment

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.61 Identify the location of cutout switches for remote radar  
repeaters and other major electronic equipment

A C E H

\_\_\_\_\_  
(Signature and Date)

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

302.2.62 Energize all navigation/task lights

A C E H

\_\_\_\_\_  
(Signature and Date)

.63 Energize and tune all bridge radars/repeaters

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.64 Analyze and display high wind/seas warnings

A D F H

\_\_\_\_\_  
(Signature and Date)

.65 Analyze and display tropical storm warnings

A D F H

\_\_\_\_\_  
(Signature and Date)

.66 Interpret barometric pressure change

A D F H

\_\_\_\_\_  
(Signature and Date)

.67 Compute desired/true wind speed and direction using  
various methods

A D F H

\_\_\_\_\_  
(Signature and Date)

.68 Supervise the launching, recovery, and operation of ship's  
boats from the bridge

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.69 Operate lifesaving appliances (to include: PFD's, lifelines,  
Lifeboats (inflatable, rigid), Liferings, immersion suits, EPIRB,  
and MOBI (indicator))

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

302.2.70 Plot a fix by three LOP's

A H

\_\_\_\_\_  
(Signature and Date)

.71 Compare GPS and chart datum and explain the impact of datum mismatch

A H

\_\_\_\_\_  
(Signature and Date)

.72 Perform datum transformation methods/processes

A D G H

\_\_\_\_\_  
(Signature and Date)

.73 Interpret ECDIS-N data

A B G H

\_\_\_\_\_  
(Signature and Date)

.74 Maintain ships position at anchor

A D F H

\_\_\_\_\_  
(Signature and Date)

.75 Navigate in restricted visibility

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.76 Supervise personnel working aloft/over the side

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.77 Perform the following ARPA functions:

- a. Switch display modes
- b. Identify false echoes, sea return, racons and SARTs
- c. Determine range and bearing
- d. Determine DRM, SRM, CPA, and TCPA
- e. Detect speed and course changes of other ships
- f. Change course to control target DRM

A H  
A H  
A H  
A H  
A H  
A H

**302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (CONT'D)**

|          |  | <b><u>Questions</u></b> |
|----------|--|-------------------------|
| 302.2.77 | g. Change speed to control target DRM                | A H                     |
|          | h. Determine true course and speed of target vessels | A H                     |
|          | i. Confirm vessel track using parallel indexing      | A H                     |
|          | j. Setup and maintain an ARPA display                | A H                     |
|          | k. Manual target acquisition                         | A H                     |
|          | l. Establish an exclusion area                       | A H                     |
|          | m. Set vector characteristics                        | A H                     |
|          | n. Designate targets                                 | A H                     |
|          | o. Cancel targets                                    | A H                     |
|          | p. Display target history                            | A H                     |
|          | q. Establish CPA and TCPA                            | A H                     |
|          | r. Establish alarm area                              | A H                     |
|          | s. Conduct trial maneuver                            | A H                     |
|          | t. Switch stabilization modes                        | A H                     |
|          | u. Display navigation lines                          | A H                     |
|          | v. Determine set and drift                           | A H                     |

\_\_\_\_\_  
(Signature and Date)

- .78 Maneuver your ship in shallow water taking squat and other effects into account A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .79 Conn ship with use of tugs A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .80 Observe minehunting exercise from the bridge A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

- .81 Conn the ship during a minehunting exercise from the bridge A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

- 302.2.82 Observe minesweeping exercise from the bridge A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .83 Conn the ship during a minesweeping exercise A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .84 Observe mine neutralization operations from the bridge A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .85 Conn the ship during a mine neutralization exercise A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .86 Observe swept channel/Q-route exercise from the bridge A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .87 Conn the ship during a sweep channel/Q-route exercise A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .88 Observe drifting mine exercise from the bridge A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .89 Conn the ship during a drifting mine exercise A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .90 Prepare the ship to reduce its vulnerability to mines in a MTA A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

302.2.91 Conn the ship in a MTA

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

COMPLETED .2 AREA COMPRISES 40% OF WATCHSTATION.

### 302.3 INFREQUENT TASKS

For the infrequent tasks listed below:

- A. What are the steps of this procedure?
- B. What control/coordination is required?
- C. What means of communications are used?
- D. What operating limitations are imposed?
- E. What safety precautions must be observed?
- F. What parameters must be monitored?
- G. What are the indications received if proper procedures are not being followed; what corrective action is required?
- H. Satisfactorily perform this infrequent task (may be conducted using a shiphandling simulator, if appropriate).

### Questions

302.3.1 Moor to a buoy

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.2 Maintain plane guard station

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.3 Maintain life guard station

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.4 Tow/be towed

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

302.3.5 Conduct towed array/SLQ-25 NIXIE operations A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.6 Conduct weapons firing A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.7 Conduct VBSS (MIO/LIO/CD) operations A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.8 Observe VERTREP operations from helo control station A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.9 Observe an abandon ship drill from the bridge A B C D E F H

\_\_\_\_\_  
(Signature and Date)

.10 Locate and operate the following lifesaving equipment:

- |                                  |               |
|----------------------------------|---------------|
| a. Lifelines                     | A B D E F G H |
| b. Pfd's                         | A B D E F G H |
| c. Lifeboats (inflatable, rigid) | A B D E F G H |
| d. Liferings                     | A B D E F G H |
| e. Immersion suits               | A B D E F G H |
| f. Epirb                         | A B D E F G H |
| g. Mobi                          | A B D E F G H |
| h. Smoke floats                  | A B D E F G H |

\_\_\_\_\_  
(Signature and Date)

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

302.3.11 Locate and operate the following optical devices:

- |    |                       |               |
|----|-----------------------|---------------|
| a. | Binoculars (big eyes) | A B D E F G H |
| b. | NVG's/NOD's           | A B D E F G H |
| c. | AN/KAS-1              | A B D E F G H |
| d. | TISS                  | A B D E F G H |

---

(Signature and Date)

.12 Conn ship in a river, estuary, or channel A B C D E F G H

---

(Signature and Date)

.13 Correct for Venturi/bank effects resulting from passing another ship in river/estuary/channel A B C D E F G H

---

(Signature and Date)

COMPLETED .3 AREA COMPRISES 5% OF WATCHSTATION.

### 302.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

- A. What indications and alarms are received?
- B. What immediate action is required?
- C. What are the probable causes?
- D. What operating limitations are imposed?
- E. What emergencies or malfunctions may occur if immediate action is not taken?
- F. How does this condition affect other operations/equipment/watchstations?
- G. What follow-up action is required?
- H. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition during normal steaming and when RMD is in effect.

### Questions

302.4.1 Loss of ship's electrical power A B C D E F G H

---

(Signature and Date)



## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

|         |  | <u>Questions</u><br>A B C D E F G H |
|---------|--|-------------------------------------|
| 302.4.2 | Loss of gyros                              |                                     |
|         | _____<br>(Signature and Date)              |                                     |
| .3      | Loss of steering control                   | A B C D E F G H                     |
|         | _____<br>(Signature and Date)              |                                     |
| .4      | Loss of boilers                            | A B C D E F G H                     |
|         | _____<br>(Signature and Date)              |                                     |
| .5      | Loss of main engines/main propulsion train | A B C D E F G H                     |
|         | _____<br>(Signature and Date)              |                                     |
| .6      | Loss of firemain pressure                  | A B C D E F G H                     |
|         | _____<br>(Signature and Date)              |                                     |
| .7      | Fuel spill                                 | A B C D E F G H                     |
|         | _____<br>(Signature and Date)              |                                     |
| .8      | Unexplained list                           | A B C D E F G H                     |
|         | _____<br>(Signature and Date)              |                                     |
| .9      | Loss of equipment cooling water            | A B C D E F G H                     |
|         | _____<br>(Signature and Date)              |                                     |
| .10     | Loss of LP and HP air                      | A B C D E F G H                     |
|         | _____<br>(Signature and Date)              |                                     |

**302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (CONT'D)**

**Questions**

302.4.11 Excessive magazine temperature

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.12 Weapons handling accident

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.13 Heavy/cold weather

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.14 Airborne debris (sand, ash, etc.)

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.15 Rescue and assistance to vessel in distress

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.16 Marine mammal protective measures

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

COMPLETED .4 AREA COMPRISES 7% OF WATCHSTATION.

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### 302.5 EMERGENCIES

For the emergencies listed below:

- A. What indications and alarms are received?
- B. What immediate action is required?
- C. What are the probable causes?
- D. What operating limitations are imposed?
- E. What other emergencies or malfunctions may occur if immediate action is not taken?
- F. How does this emergency affect other operations/equipment/watchstations?
- G. What follow-up action is required?
- H. Satisfactorily perform or simulate the immediate action for this emergency during normal steaming and when RMD is in effect.

|         |                                | <u>Questions</u> |
|---------|--------------------------------|------------------|
|         |                                | A B C D E F G H  |
| 302.5.1 | Man overboard                  |                  |
|         | _____                          |                  |
|         | (Signature and Date)           |                  |
| .2      | Collision                      | A B C D E F G H  |
|         | _____                          |                  |
|         | (Signature and Date)           |                  |
| .3      | Grounding                      | A B C D E F G H  |
|         | _____                          |                  |
|         | (Signature and Date)           |                  |
| .4      | Fire                           | A B C D E F G H  |
|         | _____                          |                  |
|         | (Signature and Date)           |                  |
| .5      | Major oil leak/main space fire | A B C D E F G H  |
|         | _____                          |                  |
|         | (Signature and Date)           |                  |
| .6      | Major flooding                 | A B C D E F G H  |
|         | _____                          |                  |
|         | (Signature and Date)           |                  |

## 302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (CONT'D)

### Questions

- 302.5.7 Abandon ship A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .8 Aircraft in water A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .9 Aircraft crash on deck A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .10 CONREP emergencies:
- a. Engineering casualty A B C D E F G H
  - b. Flight deck A B C D E F G H
  - c. Man overboard A B C D E F G H
  - d. Delivery ship A B C D E F G H
  - e. Loss of gyro A B C D E F G H
  - f. Rapid closure to ship along side A B C D E F G H
  - g. Emergency breakaway A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .11 Small boat attack A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .12 Torpedo attack A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .13 Loss of SDRW pressure A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)

**302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (CONT'D)**

**Questions**

302.5.14 Dud/misfire procedures A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.15 Grounding of minehunting sonar A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.16 Mine sighting A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.17 Mine explosion A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.18 Aircraft in-flight emergencies A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.19 Marine mammal strike A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

COMPLETED .5 AREA COMPRISES 10% OF WATCHSTATION.

**302.6 WATCHES**

**302.6.1 STAND THE FOLLOWING WATCHES UNDER INSTRUCTION:**

Condition IV (2 times)

\_\_\_\_\_  
(Signature and Date)

\_\_\_\_\_  
(Signature and Date)

**302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (CONT'D)**

302.6.1 Flight Operations (2 times)

---

(Signature and Date)

---

(Signature and Date)

Sea and Anchor (2 times)

---

(Signature and Date)

---

(Signature and Date)

Condition III (2 times)

---

(Signature and Date)

---

(Signature and Date)

Platform Mission Specific Conditions (e.g. IIIA for AMPHIB, 2MH for SMCM, IIAS for CRUDES, etc.) (2 times)

---

(Signature and Date)

---

(Signature and Date)

Connected Underway Replenishment (CONREP)

---

(Signature and Date)

COMPLETED .6 AREA COMPRISES 9% OF WATCHSTATION.

**302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (CONT'D)**

302.7 EXAMINATIONS

302.7.1 EXAMINATIONS Pass a written examination

302.7.1 a. Inland and International Rules of the Road exam (Required)  
(Minimum score of 90%)

---

(Signature and Date)

b. OOD exam (Optional)

---

(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

---

(Signature and Date)





## FINAL QUALIFICATION

NAVEDTRA 43101-4F

303 SURFACE WARFARE OFFICER (SWO) OFFICER OF  
THE DECK (OOD) UNDERWAY (U/W) (PLATFORM  
ENDORSEMENT)

NAME \_\_\_\_\_ RATE/RANK \_\_\_\_\_

This page is to be used as a record of satisfactory completion of designated sections of the Personnel Qualification Standard (PQS). Only specified supervisors may signify completion of applicable sections either by written or oral examination, or by observation of performance aboard or in a high fidelity trainer. The examination or checkout need not cover every item; however, a sufficient number should be covered to demonstrate the examinee's knowledge. Should supervisors *give away* their signatures, unnecessary difficulties can be expected in future routine operations.

A copy of this completed page shall be kept in the individual's training jacket.

---

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (NAVEDTRA 43101-4F).

RECOMMENDED \_\_\_\_\_ DATE \_\_\_\_\_  
Department Head

RECOMMENDED \_\_\_\_\_ DATE \_\_\_\_\_  
Senior Watch Officer

RECOMMENDED \_\_\_\_\_ DATE \_\_\_\_\_  
Executive Officer

QUALIFIED \_\_\_\_\_ DATE \_\_\_\_\_  
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY \_\_\_\_\_ DATE \_\_\_\_\_



## WATCHSTATION 303

### 303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (PLATFORM ENDORSEMENT)

Estimated completion time: 30 Days

---

NOTES: 2<sup>ND</sup> TOUR DIVISION OFFICERS, DEPARTMENT HEADS, AND EXECUTIVE OFFICERS SHALL COMPLETE THIS PQS PRIOR TO STANDING UNSUPERVISED OOD (U/W) WATCHES ABOARD THEIR SHIP.

#### 303.1 PREREQUISITES

**FOR OPTIMUM TRAINING EFFECTIVENESS, THE FOLLOWING ITEMS SHOULD BE COMPLETED PRIOR TO STARTING YOUR ASSIGNED TASKS BUT SHALL BE COMPLETED PRIOR TO FINAL WATCHSTATION QUALIFICATION.**

##### 303.1.1 PQS QUALIFICATIONS:

Surface Warfare Officer (SWO) Engineering (NAVEDTRA 43101-3F)  
(Recommended)

Completed \_\_\_\_\_  
(Qualifier and Date)

##### .2 WATCHSTATIONS FROM THIS PQS:

302 Surface Warfare Officer (SWO) Officer of the Deck (OOD) Underway (U/W)  
(Completed in previous platform)

Completed \_\_\_\_\_  
(Qualifier and Date)

### 303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)

#### 303.2 TASKS

For the tasks listed below:

- A. What are the steps of this procedure?
- B. What control/coordination is required?
- C. What means of communications are used?
- D. What operating limitations are imposed?
- E. What safety precautions must be observed?
- F. What parameters/operating limits must be monitored?
- G. What are the indications received if proper procedures are not being followed; what corrective action is required?
- H. Satisfactorily perform this task (may be conducted using a shiphandling simulator, if appropriate).

#### Questions

303.2.1 Operate and supervise the use of all bridge equipment A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.2 Screen all reports to OOD and initiate appropriate action A B C G H

\_\_\_\_\_  
(Signature and Date)

.3 Increase bridge condition of readiness, keeping a full grasp of the tactical situation A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.4 Transfer steering control from primary control to each alternate method of control A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.5 Report contacts to the Commanding Officer using required format from the standing orders A B C H

\_\_\_\_\_  
(Signature and Date)

### 303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)

#### Questions

- |         |   |                 |
|---------|---|-----------------|
| 303.2.6 | Conn the ship during a mooring evolution                      | A B C D E F G H |
|         | _____   |                 |
|         | (Signature and Date)  |                 |
| .7      | Conn the ship underway from a pier                            | A B C D E F G H |
|         | _____   |                 |
|         | (Signature and Date)  |                 |
| .8      | Conn the ship through an anchoring evolution                  | A B C D E F G H |
|         | _____   |                 |
|         | (Signature and Date)  |                 |
| .9      | Conn the ship underway from an anchorage                      | A B C D E F G H |
|         | _____   |                 |
|         | (Signature and Date)  |                 |
| .10     | Observe a CONREP evolution at an CONREP station               | A B C D E F G H |
|         | _____   |                 |
|         | (Signature and Date)  |                 |
| .11     | Conn alongside during a CONREP evolution                      | A B C D E F G H |
|         | _____   |                 |
|         | (Signature and Date)  |                 |
| .12     | Conn during a CONREP approach                                 | A B C D E F G H |
|         | _____   |                 |
|         | (Signature and Date)  |                 |
| .13     | Conn during a CONREP breakaway                                | A B C D E F G H |
|         | _____   |                 |
|         | (Signature and Date)  |                 |
| .14     | Observe aviation operations from PRI-FLY/helo control station | A B C D E F G H |
|         | _____   |                 |
|         | (Signature and Date)  |                 |

**303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)**

**Questions**

303.2.15 Supervise aviation operations from bridge A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.16 Conn the ship to recover an actual or simulated man overboard A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.17 Determine speed limitations based on propulsion plant capabilities and lineup A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.18 Supervise setting of EMCON/HERO conditions on all bridge equipment A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.19 Identify the location of cutout switches for remote radar repeaters and other major electronic equipment A C E H

\_\_\_\_\_  
(Signature and Date)

.20 Energize all navigation/task lights A C E H

\_\_\_\_\_  
(Signature and Date)

.21 Compute desired/true wind speed and direction using various methods A D F H

\_\_\_\_\_  
(Signature and Date)

.22 Supervise the launching, recovery, and operation of ship's boats from the bridge A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

**303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)**

**Questions**

303.2.23 Locate and operate the following lifesaving equipment:

- |    |                               |               |
|----|-------------------------------|---------------|
| a. | Lifelines                     | A B D E F G H |
| b. | PFD's                         | A B D E F G H |
| c. | Lifeboats (inflatable, rigid) | A B D E F G H |
| d. | Liferings                     | A B D E F G H |
| e. | Immersion suits               | A B D E F G H |
| f. | EPIRB                         | A B D E F G H |
| g. | MOBI                          | A B D E F G H |
| h. | Smoke floats                  | A B D E F G H |

\_\_\_\_\_  
(Signature and Date)

.24 Maneuver your ship in shallow water taking squat and other effects into account

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.25 Conn ship with use of tugs

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.26 Observe minehunting exercise from the bridge

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.27 Conn the ship during a minehunting exercise from the bridge

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.28 Observe minesweeping exercise from the bridge

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.29 Conn the ship during a minesweeping exercise

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

### 303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)

#### Questions

- 303.2.30 Observe mine neutralization operations from the bridge A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .31 Conn the ship during a mine neutralization exercise A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .32 Observe swept channel/Q-route exercise from the bridge A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .33 Conn the ship during a sweep channel/Q-route exercise A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .34 Observe drifting mine exercise from the bridge A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .35 Conn the ship during a drifting mine exercise A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .36 Prepare the ship to reduce its vulnerability to mines in a MTA A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .37 Conn the ship in a MTA A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)
- .38 Energize and tune all bridge radars/repeaters A B C D E F G H
- \_\_\_\_\_  
(Signature and Date)



**303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)**

**Questions**

A B G H

303.2.39 Interpret ECDIS-N data

---

(Signature and Date)

.40 Perform the following ARPA functions:

- |    |  |     |
|----|--|-----|
| a. | Switch display modes                                 | A H |
| b. | Identify false echoes, sea return, racons, and SARTs | A H |
| c. | Determine range and bearing                          | A H |
| d. | Determine DRM, SRM, CPA, and TCPA                    | A H |
| e. | Detect speed and course changes of other ships       | A H |
| f. | Change course to control target DRM                  | A H |
| g. | Change speed to control target DRM                   | A H |
| h. | Determine true course and speed of target vessels    | A H |
| i. | Confirm vessel track using parallel indexing         | A H |
| j. | Setup and maintain an ARPA display                   | A H |
| k. | Manual target acquisition                            | A H |
| l. | Establish an exclusion area                          | A H |
| m. | Set vector characteristics                           | A H |
| n. | Designate targets                                    | A H |
| o. | Cancel targets                                       | A H |
| p. | Display target history                               | A H |
| q. | Establish CPA and TCPA                               | A H |
| r. | Establish alarm area                                 | A H |
| s. | Conduct trial maneuver                               | A H |
| t. | Switch stabilization modes                           | A H |
| u. | Display navigation lines                             | A H |
| v. | Determine set and drift                              | A H |

---

(Signature and Date)

.41 Operate bridge DLS control panel

A B C D E F G H

---

(Signature and Date)

COMPLETED .2 AREA COMPRISES 40% OF WATCHSTATION.

### 303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)

#### 303.3 INFREQUENT TASKS

For the infrequent tasks listed below:

- A. What are the steps of this procedure?
- B. What control/coordination is required?
- C. What means of communications are used?
- D. What operating limitations are imposed?
- E. What safety precautions must be observed?
- F. What parameters must be monitored?
- G. What are the indications received if proper procedures are not being followed; what corrective action is required?
- H. Satisfactorily perform this infrequent task (may be conducted using a shiphandling simulator, if appropriate).

|         |   | <u>Questions</u> |
|---------|---|------------------|
| 303.3.1 | Moor to a buoy                              | A B C D E F G H  |
|         | _____                                       |                  |
|         | (Signature and Date)                        |                  |
| .2      | Maintain plane guard station                | A B C D E F G H  |
|         | _____                                       |                  |
|         | (Signature and Date)                        |                  |
| .3      | Maintain life guard station                 | A B C D E F G H  |
|         | _____                                       |                  |
|         | (Signature and Date)                        |                  |
| .4      | Tow/be towed                                | A B C D E F G H  |
|         | _____                                       |                  |
|         | (Signature and Date)                        |                  |
| .5      | Conduct towed array/SLQ-25 NIXIE operations | A B C D E F G H  |
|         | _____                                       |                  |
|         | (Signature and Date)                        |                  |
| .6      | Conduct weapons firing                      | A B C D E F G H  |
|         | _____                                       |                  |
|         | (Signature and Date)                        |                  |

**303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)**

**Questions**

303.3.7 Conduct VBSS (MIO/LIO/CD) operations A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.8 Observe VERTREP operations from helo control station A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.9 Locate and operate the following lifesaving equipment:

- |    |                               |               |
|----|-------------------------------|---------------|
| a. | Lifelines                     | A B D E F G H |
| b. | PFD's                         | A B D E F G H |
| c. | Lifeboats (inflatable, rigid) | A B D E F G H |
| d. | Liferings                     | A B D E F G H |
| e. | Immersion suits               | A B D E F G H |
| f. | EPIRB                         | A B D E F G H |
| g. | MOBI                          | A B D E F G H |
| h. | Smoke floats                  | A B D E F G H |

\_\_\_\_\_  
(Signature and Date)

.10 Locate and operate the following optical devices:

- |    |                       |               |
|----|-----------------------|---------------|
| a. | Binoculars (big eyes) | A B D E F G H |
| b. | NVG's/NOD's           | A B D E F G H |
| c. | AN/KAS-1              | A B D E F G H |
| d. | TISS                  | A B D E F G H |

\_\_\_\_\_  
(Signature and Date)

.11 Conn ship in a river, estuary, or channel A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

**303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)**

**Questions**

303.3.12 Correct for Venturi/bank effects resulting from passing another ship in river/estuary/channel

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

COMPLETED .3 AREA COMPRISES 10% OF WATCHSTATION.

**303.4 ABNORMAL CONDITIONS**

For the abnormal conditions listed below:

- A. What indications and alarms are received?
- B. What immediate action is required?
- C. What are the probable causes?
- D. What operating limitations are imposed?
- E. What emergencies or malfunctions may occur if immediate action is not taken?
- F. How does this condition affect other operations/equipment/watchstations?
- G. What follow-up action is required?
- H. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition during normal steaming and when RMD is in effect.

**Questions**

303.4.1 Loss of ship's electrical power

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.2 Loss of gyros

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.3 Loss of steering control

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.4 Loss of boilers

A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

### 303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)

#### Questions

303.4.5 Loss of main engines/main propulsion train A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.6 Loss of firemain pressure A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.7 Loss of equipment cooling water A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.8 Loss of LP and HP air A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

COMPLETED .4 AREA COMPRISES 30% OF WATCHSTATION.

#### 303.5 EMERGENCIES

For the emergencies listed below:

- A. What indications and alarms are received?
- B. What immediate action is required?
- C. What are the probable causes?
- D. What operating limitations are imposed?
- E. What other emergencies or malfunctions may occur if immediate action is not taken?
- F. How does this emergency affect other operations/equipment/watchstations?
- G. What follow-up action is required?
- H. Satisfactorily perform or simulate the immediate action for this emergency during normal steaming and when RMD is in effect.

#### Questions

303.5.1 Man overboard A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

**303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)**

**Questions**

303.5.2 Fire A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.3 Major oil leak/main space fire A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.4 Major flooding A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.5 Aircraft in water A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.6 Aircraft crash on deck A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.7 CONREP emergencies:

- |    |                                  |                 |
|----|----------------------------------|-----------------|
| a. | Engineering casualty             | A B C D E F G H |
| b. | Flight deck                      | A B C D E F G H |
| c. | Man overboard                    | A B C D E F G H |
| d. | Delivery ship                    | A B C D E F G H |
| e. | Loss of gyro                     | A B C D E F G H |
| f. | Rapid closure to ship along side | A B C D E F G H |
| g. | Emergency breakaway              | A B C D E F G H |

\_\_\_\_\_  
(Signature and Date)

.8 Small boat attack A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

### 303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD) UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)

#### Questions

303.5.9 Torpedo attack A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.10 Loss of SDRW pressure A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.11 Dud/misfire procedures A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.12 Grounding of minehunting sonar A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.13 Mine sighting A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.14 Mine explosion A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.15 Aircraft in-flight emergencies A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

.16 Marine mammal strike A B C D E F G H

\_\_\_\_\_  
(Signature and Date)

COMPLETED .5 AREA COMPRISES 10% OF WATCHSTATION.

**303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)**

303.6.1 STAND THE FOLLOWING WATCHES UNDER INSTRUCTION:

Condition III/IV

\_\_\_\_\_  
(Signature and Date)

Flight Operations

\_\_\_\_\_  
(Signature and Date)

Sea and Anchor

\_\_\_\_\_  
(Signature and Date)

Platform Mission Specific Conditions (e.g. IIIA for AMPHIB, 2MH for SMCM, IIAS for CRUDES, etc.)

\_\_\_\_\_  
(Signature and Date)

Connected Underway Replenishment (CONREP)

\_\_\_\_\_  
(Signature and Date)

COMPLETED .6 AREA COMPRISES 10% OF WATCHSTATION.



**303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (PLATFORM ENDORSEMENT) (CONT'D)**

**303.7 EXAMINATIONS**

**303.7.1 EXAMINATIONS** Pass a written examination

- a. Inland and International Rules of the Road exam (REQUIRED)  
(Minimum score of 90%)

---

(Signature and Date)

- b. Officer of the Deck (OOD) exam (OPTIONAL)

---

(Signature and Date)

**.2 EXAMINATIONS** Pass an oral examination board

---

(Signature and Date)



## NAVEDTRA 43101-4F

### QUALIFICATION PROGRESS SUMMARY FOR SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER WATCH OFFICER (CICWO)/OFFICER OF THE DECK (OOD) UNDERWAY (U/W)/OFFICER OF THE DECK (OOD) UNDERWAY (U/W) PLATFORM ENDORSEMENT

NAME \_\_\_\_\_ RATE/RANK \_\_\_\_\_

This qualification progress summary is used to track the progress of a trainee in the watchstations for this PQS and ensure awareness of remaining tasks. It should be kept by the individual or in the individual's training jacket and updated with an appropriate signature (Training Petty Officer, Division Officer, Senior Watch Officer, etc.) as watchstations are completed.

---

301 SURFACE WARFARE OFFICER (SWO) COMBAT INFORMATION CENTER  
WATCH OFFICER (CICWO)

Completed \_\_\_\_\_ Date \_\_\_\_\_  
(Signature)

---

302 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W)

Completed \_\_\_\_\_ Date \_\_\_\_\_  
(Signature)

---

303 SURFACE WARFARE OFFICER (SWO) OFFICER OF THE DECK (OOD)  
UNDERWAY (U/W) (PLATFORM ENDORSEMENT)

Completed \_\_\_\_\_ Date \_\_\_\_\_  
(Signature)

---



## LIST OF REFERENCES USED IN THIS PQS

ATP 1(C), Allied Maritime Tactical Instructions and Procedures, Vol. I  
ATP 1(C), Allied Maritime Tactical Signal and Maneuvering Book, Vol. II  
ATP 24(C), Mine Countermeasures Tactics and Execution, Vol. I  
ATP 28(A), Allied Antisubmarine Warfare Manual  
ATP 36(A), Amphibious Operations Ship-to-Shore Movement  
ATP 4(E), Allied Naval Gunfire Support  
ATP 6(B), Mine Warfare Principles, Vol. I  
ATP 6(C), Mine Countermeasures Operations Planning and Evaluation, Vol. II  
ATP 6, Vol. I, Allied Doctrine of Mine Warfare Planning and Principles  
ATP 8(A), Doctrine for Amphibious Operations  
Chart No. 1, Nautical Chart Symbols, Abbreviations, and Terms  
CJCS MOP 30, Chairman of the Joint Chiefs of Staff Memorandum of Policy, No. 30  
CJCS MOP 6, Chairman of the Joint Chiefs of Staff Memorandum of Policy, No. 6  
CNSF-CNAFINST 3530.4, Surface Ship Navigation Department Organization and Regulations Manual (NAVDORM)  
Combat Systems Operational Sequencing System (CSOSS) User's Manual  
COMDTINST M16672.2D, Navigation Rules (Rule 1 through 38, ANNEX I - V)  
COMINWARCOM TACMEMO 3-15.11-02, Tactical Applications of Bottom Mapping  
Commanding Officer's Standing Orders  
Communications Info Bulletins (CIB)/Communications Info Advisories (CIA)  
COMNAVAIRFORINST/COMNAVSURFORINST 3530.4A, Surface Ship Navigation Department Organization and Regulations Manual  
COMSURFWARDEVGRU TACMEMO A-23010-2-97, Air Warfare Planning Guide  
COMSURFWARDEVGRU TACMGMO TM 3-21.2-98, Attack and Evasion Tactics Manual  
COMTHIRDFLT/COMSUBPAC TACNOTE ZZ 1010-1-94, Coordinated Submarine Manual  
Dutton's Navigation and Piloting (Maloney), 14<sup>th</sup> Edition  
EHF Low Data Rate (LDR) and Medium Data (MDR) System User's Handbook  
Engineering Operational Sequencing System (EOSS)  
Farwells Rules of the Nautical Road (Bassett & Smith)  
Fleet ESG CONOP  
FXP-1 (Rev. J), Antisubmarine Warfare (ASW) Exercises  
HO Pub No. 217, Maneuvering Board Manual  
INMARSAT (B)/High Speed Data (HSD) IT21 User's Handbook  
International Code of Signals (Pub. 102)  
Jane's All the World's Aircraft  
Jane's Fighting Ships, 1995-96 (98<sup>th</sup> Edition)  
Joint Multi-Tactical Data Link (TDL) Operating Procedures  
Joint Pub 3-02, Joint Doctrine for Amphibious Operations  
Joint Pub 3-02.1T, Joint Doctrine for Landing Force Operations  
Joint Pub 3-50.2, Doctrine for Joint Combat Search and Rescue  
Joint Pub 3-56, Tactical Command and Control Planning Guidance and Procedures for Joint Operations (Information Exchange Planning Guidance)  
Knight's Modern Seamanship, 18<sup>th</sup> Edition  
Manufacturer's Technical Manual

## LIST OF REFERENCES (CONT'D)

MIW CONOPS

Nautical Almanac

NAVAIR 00-80R-14, NATOPS U.S. Navy Aircraft Firefighting and Rescue Manual  
(01 Sep 2001)

NAVAIR 00-80T-106, LHA/LHD NATOPS (01 Nov 2002)

NAVAIR 00-80T-113, Aircraft Signals NATOPS Manual (01 Dec 2001)

NAVAIR 01-75PAC-1, NATOPS Flight Manual, P-3C Aircraft

Naval Shiphandling (Crenshaw), 4<sup>th</sup> Edition

NAVCAMSEASTPAC/WESTPAC Instruction C2000.3C, Fleet telecommunications Procedures,  
Ch. 11

NAVEDTRA 14000, Fire Controlman, Vol. 3

NAVEDTRA 14067, Seaman

NAVEDTRA 14095, Electronics Warfare Technician 1 & C

NAVEDTRA 14096, Electronics Warfare Technician 3 & 2

NAVEDTRA 14097, Fire Control Supervisor

NAVEDTRA 14099A, Fire Controlman, Vol. 02-Fire Control Systems and Radar Fundamentals

NAVEDTRA 14109, Gunner's Mate M 3 & 2

NAVEDTRA 14182, NEETS Module 10--Intro to Wave Propagation, Transmission Lines, and  
Antennas

NAVEDTRA 14189, NEETS Module 17--Radio Frequency Communications Principles

NAVEDTRA 14202, Operations Specialist 1 & C

NAVEDTRA 14203, Operations Specialist 2

NAVEDTRA 14204, Operations Specialist 3

NAVEDTRA 14244, Signalman 3 & 2

NAVEDTRA 14308, Operations Specialist, Vol. 1

NAVEDTRA 14309, Integrated Undersea Surveillance Systems Operations

NAVEDTRA 14324, Gunner's Mate

NAVEDTRA 14338, Quartermaster

NAVEDTRA 14343, Boatswain's Mate

NAVMACS II System SOP

NAVMED P-5010-010-LP-207-1300, Manual of Naval Preventive Medicine

NAVSEA OP 3347 (Rev. 2, Change 13), U.S. Navy Ordnance Safety Precautions

NAVSEA OP 4407, MK 309

NAVSEA S6340-AA-MMA-010 (Rev. 2), Otto Fuel II, Safety, Stowage, and Handling Instruction

NAVSEA SL740-AA-MAN-010 (Rev. 1), U.S. Navy Towing Manual

NAVSEA SW010-AF-ORD-010, Identification of Ammunition

NAVSEA SW030-AA-MMO-010 (Rev. 2), Navy Gun Type Ammunition

NAVSEA SW300-BC-SAF-010, Clearing of Live Ammunition From Guns

NAVSEA SW394-AF-MMO-030, Functional Introduction into VLS

NAVSUP P-485, Afloat Supply Procedures

Navy Tactical Reference Publication (NTRP) 3-07.2.2, Force Protection Weapons Handling  
Standard Procedures and Guidelines

Navywide OPTASK ASW

NIMA Catalog of Maps, Charts, and Pubs, 8<sup>th</sup> Edition

NSTM S9086-T8-STM-010/CH-593 (Rev. 4), Pollution Control

NSTM S9086-TK-STM-010/CH-571R1, Underway Replenishment

NSTM S9086-TV-STM-000/CH-581, Anchoring

## LIST OF REFERENCES (CONT'D)

NSTM S9086-TW-STM-010/CH-582R1, Mooring and Towing  
NSTM S9086-TX-STM-010/CH-583 (Rev. 4), Boats and Small Craft  
NSTM S9086-UU-STM-010/CH-613, Wire Rope and Rigging, Sec. 2  
NSTM S9086-WK-STM-010/CH-670, Stowage, Handling, and Disposal of Hazardous General Use Consumables  
NTP 4, Naval Telecommunications Publication  
NTTP 1-03.3A, Status of Resources and Training System (SORTS)  
NTTP 3-03.1E, Tomahawk Land Attack Missile (TLAM C/D) Employment Manual  
NTTP 3-07.2.1, Antiterrorism/Force Protection  
NTTP 3-13.2, Naval Information Warfare Commanders Manual  
NTTP 3-15.21, Surface Mine Countermeasures Operations (SMCM)  
NTTP 3-15.23, Underwater Mine Countermeasures (UMCM)  
NTTP 3-20.31.79, Practical Damage Control (NSTM Ch. 079, Vol. 2, S9086-CN-STM-020/CH-079V2R2)  
NTTP 3-20.71A, Surface Ship Harpoon Employment Manual  
NTTP 3-22.1-P3, P-3C Tactical Manual, Vol. 1  
NWP 1-03.1, Operational Reports  
NWP 1-03.41, Maritime Reporting System  
NWP 1-10.11, Tactical Action Officer Handbook  
NWP 1-11.01 (Rev. A), Characteristics and Capabilities of U.S. Navy Combatant Ships  
NWP 11-3, Characteristics and Capabilities of U.S. Navy Aircraft  
NWP 22-4 (Rev. B), Underwater Demolition Teams in Amphibious Operations  
NWP 22-5 (Rev. C), The Naval Beach Group  
NWP 27-4, Mining Operations  
NWP 3-01.01, Anti-air Warfare  
NWP 3-01.10, Anti-air Warfare Commanders' Manual  
NWP 3-02.1, Ship-to-Shore Movement  
NWP 3-03.1E, Tomahawk Land Attack Missile (TLAM C/D) Employment Manual  
NWP 3-03.2C, Tomahawk Land Attack Missile (TLAM) Launch Platform and Weapons Systems Tactics, UC-1  
NWP 3-04.1M, Helicopter Operating Procedures for Air Capable Ships  
NWP 3-07.11, Maritime Interception Operations  
NWP 3-09.11M, Supporting Arms in Amphibious Operations  
NWP 3-10 (Rev. A), Naval Coastal Defense Doctrine  
NWP 3-13.1.13, Electronic Warfare Coordination  
NWP 3-15, Mine Warfare  
NWP 3-15.2, Mine Countermeasures Operations  
NWP 3-15.22, AMCM Operations  
NWP 3-15.41, Mine Countermeasures Planning and Procedures (General Instructions)  
NWP 3-15.42 (Rev. B), Minefield Planning  
NWP 3-15.5, Organic Mine Countermeasures (OMCM)  
NWP 3-20.1, Antisurface Warfare Commander's Manual  
NWP 3-20.3, Surface Ship Antisurface Warfare Tactics  
NWP 3-20.6 (Series), Ship's Class Tactical Manual  
NWP 3-20.7, Afloat Over-the-Horizon Targeting (OTH-T) and Surveillance  
NWP 3-21.3, Surface Ship Antisubmarine Warfare (ASW) Principles  
NWP 3-21.34, Surface Ship Acoustic Prediction Systems and Tactics

## LIST OF REFERENCES (CONT'D)

NWP 3-21.35, Surface Ship Active and Passive Sonar Systems and Tactics  
NWP 3-50.1A, Navy Search and Rescue (SAR) Manual  
NWP 3-56A, Composite Warfare Commander's Manual  
NWP 3-58.1, Navy Operational Deception and Counter-Deception  
NWP 4-01.4, Underway Replenishment  
NWP 55-2-2 (Rev. F), Tactical Airborne Information Document (TACAID) for ASW Aircraft  
NWP 3-58.1, Navy Operational Deception and Counter-Deception  
NWP 6-01.3 (Rev. A), Submarine Tactical Communications  
NWP 6-01A, Basic Operational Communications Doctrine (CDF/CLF/CIVE)  
NWP 6-02.5, Introduction to Tactical Data Digital Information Link J and Quick Reference Guide  
NWP 61, Surface Ship Antisubmarine Warfare (ASW) Principles  
NWP 65 (Series), Class Tactical Manual  
NWP 65-0-1, Characteristics and Capabilities of U.S. Navy Combatant Ships  
NWP-3-04.1M, Helicopter Operating Procedures for Air Capable Ships  
Oil Spills Inport Prevention Video, Pin Number 806628  
OPNAVINST 3100.6G, Special Incident Reporting  
OPNAVINST 3120.32C (Change 5), Standard Organization and Regulations Manual of the U.S. Navy (SORM)  
OPNAVINST 3500.39A, Operational Risk Management (ORM)  
OPNAVINST 5090.1B (Change 4), Environmental and Natural Resources Program Manual  
OPNAVINST 5100.19D (Change 1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat  
OPNAVINST 5102.1C, Mishap Investigation and Reporting  
PACOMINST 5050-99, Blue Dart Reporting Procedures  
Range Finder Equipment Users Manual  
SAIC MEDAL Operators Handbook  
Seamanship Fundamentals for the Deck Officer (Dodge and Kyriss), 1981  
SHF Defense Satellite Communications System (DSCS) Naval Operators Handbook  
Shiphandling for the Mariner (MacElrevey), 3rd Edition  
Ship's Abandon Ship Bill  
Ship's Combat Systems Doctrine (Class Specific)  
Ship's Class Tactical Manual  
Ship's Drawings  
Ship's Emission Control Bill  
Ship's Engineering Operating Sequencing System (EOSS)  
Ship's Information Book (SIB)  
Ship's Tactical Characteristics Folder  
SW180-A4-OPI-010, MK 116, Mod 4  
SW181-A7-OPI-010, MK 116, Mod 7  
TACMEMO 3-51.2-01, Surface Ship Electronic Attack  
The American Practical Navigator (Bowditch), 2002  
The Boat Officers Handbook (Winters), Second Edition  
UHF MILSATCOM Operator's Handbook  
Voice Operating Procedures Training Manual  
Watch Officers Guide, (Stavridis), 14th Edition  
Worldwide FOTC SOP



PERSONNEL QUALIFICATION STANDARD  
Feedback Form for NAVEDTRA 43101-4F

From \_\_\_\_\_ Date \_\_\_\_\_

Via \_\_\_\_\_ Date \_\_\_\_\_

Department Head

Activity \_\_\_\_\_

Mailing Address \_\_\_\_\_

*E-mail Address* \_\_\_\_\_ DSN \_\_\_\_\_

PQS Title \_\_\_\_\_ NAVEDTRA \_\_\_\_\_

Section Affected \_\_\_\_\_

Page Number(s) \_\_\_\_\_

---

For faster response, you may e-mail your feedback to the PQS Development Group at: N3208.pqs@cnet.navy.mil. Please include the above information so that we may better serve you.

---

Remarks/Recommendations (Use additional sheets if necessary):



(FOLD HERE)

DEPARTMENT OF THE NAVY

OFFICIAL BUSINESS

COMMANDING OFFICER  
NETPDTC N3208  
6490 SAUFLEY FIELD ROAD  
PENSACOLA FL 32509-5237

(FOLD HERE)